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MATHEMATICS

III STANDARD

**Untouchability
Inhuman- Crime**

Department of School Education

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CHAIRPERSON

C.PERIASAMY,

Senior Lecturer,
D.I.E.T., Namakkal – 637001.

REVIEWERS

G.PALANI,

Lecturer,
D.I.E.T., VADALUR -607 303,
CUDDALORE (DIST.).

K.MANGAIYERKARASI,

Lecturer,
D.I.E.T.,
DHARMAPURI -636 808.

AUTHORS

S.SOUNDARARADJANE,

Headmaster,
P.U.M. School.,
Agani, Sirkali Taluk, – 609 111,
Nagapattinam (Dist.).

E.MALARVIZHI,

Secondary Grade Teacher,
P.U.M. School , Ninnaikarai,
Kattankulathur Block,
Kancheepuram (Dist.).

PAULINE GODFREY AJOO,

B.T. Assistant,
Doveton Girls Hr. Sec. School.,
Vepary, Chennai – 600 007.

S.BALAMBAL,

Teacher,
J.G. Hindu Vidyalaya. Mat. Hr. Sec. School,
West Mambalam, Chennai – 600 033.

S.MEENAKSHI,

Teacher,
G.K.Shetty Hindu Vidhayalaya Mat. Hr. Sec. School,
Adambakkam, Chennai – 600 088.

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1

SHAPES AND FIGURES - I

Recall

There are number of shapes all around us.

The four basic shapes

- Triangle
- Square
- Rectangle
- Circle

Basic shapes

Look at the basic shapes :



Square



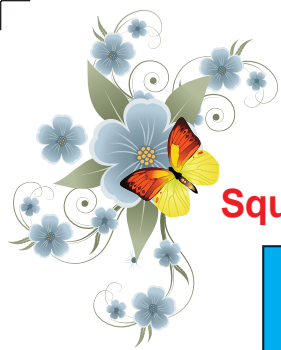
Rectangle



Triangle



Circle



Square :



It is a square
It has four sides and four corners.



ACTIVITY 1

We will make a square through paper folding.

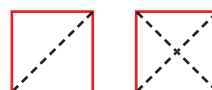
Step 1 : Take a paper and fold it as shown in the figure.



Step 2 : Cut the shaded portion.

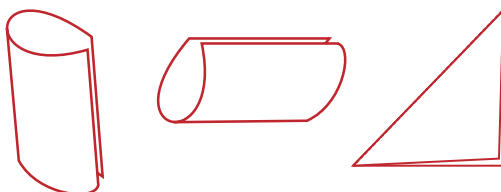


Step 3 : Now unfold the paper we get square.



The dotted line is a diagonal obtained by joining the respective opposite corners. There are two diagonals in a square.

To compare the sides of the square, fold the paper as shown in figure.



Measures the diagonals with thread.



Diagonals are equal.



ACTIVITY 2

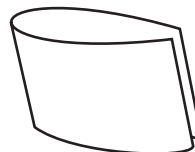
List out the things around you which are square in shape.

Rectangle :



This is a Rectangle

It has four sides and four corners. To measure the sides of the rectangle fold its opposite sides .

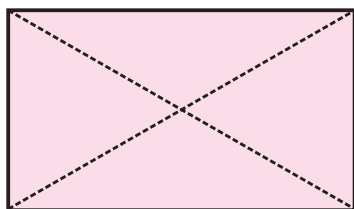


What do you observe? The sides coincide.



So! opposite sides are equal

As you did for the square, make the diagonals in the rectangle and measure the diagonals using thread.



In rectangle also diagonals are equal



ACTIVITY 3

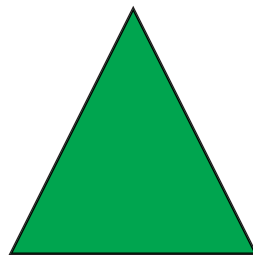
List out the things around you which are rectangular in shape.



Triangle :

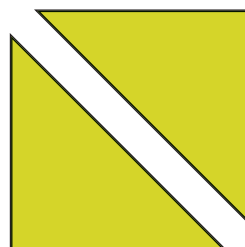
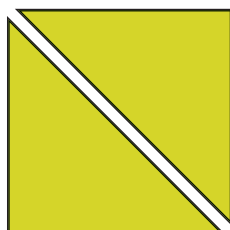
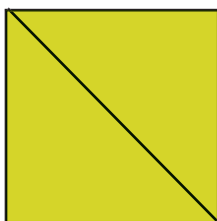


This is a triangle

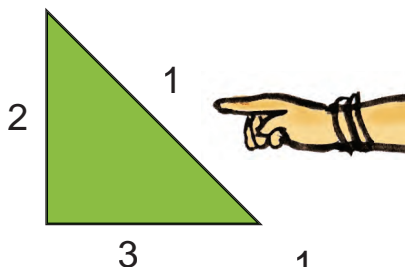


We will make a triangle through paper folding.

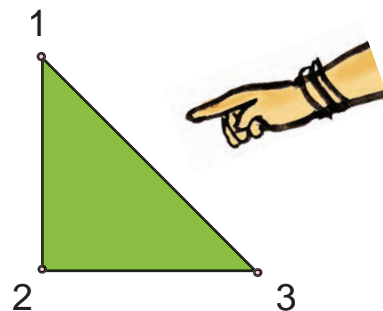
Take a paper and cut it along its diagonal, we get two triangles.



Triangle has three sides.



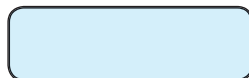
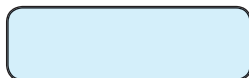
Triangle has three corners.



ACTIVITY 4

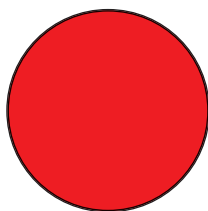
List out the things around you which are triangular in shape.

Vicks toffee



Circle :

Circle is a closed curve.
It has no corner.

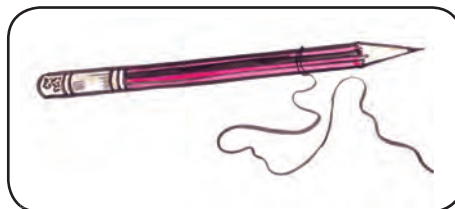


This is a Circle

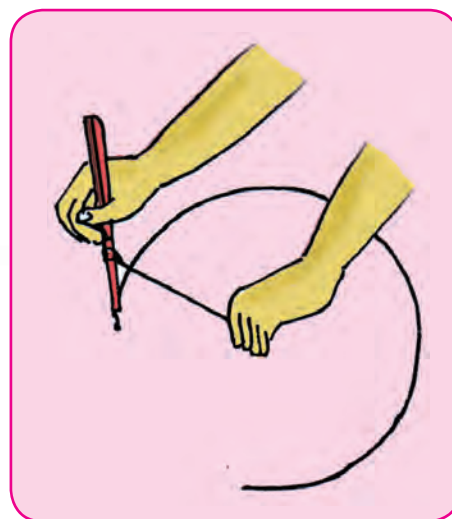
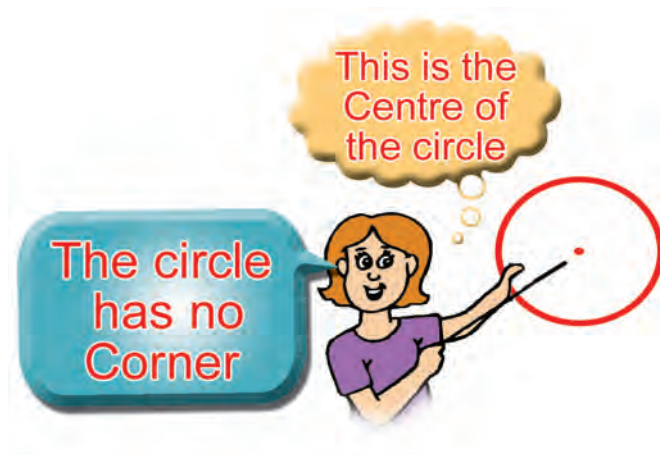


Draw a circle using pencil and thread.

Tie one end of the thread to the pencil as shown in figure.



Press the other end of the thread on the paper and draw the curved line with the pencil, we get a circle.



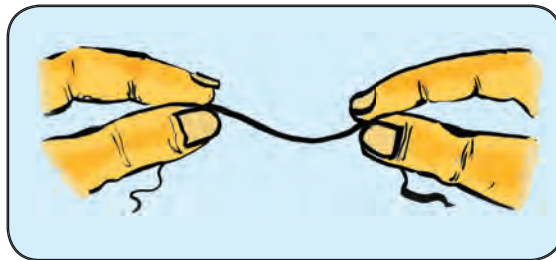
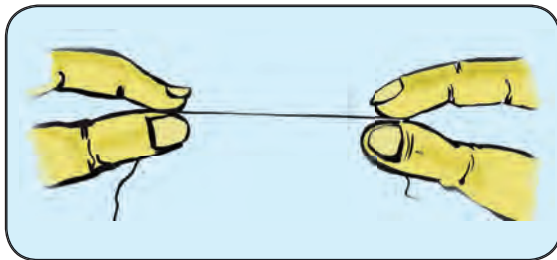
ACTIVITY 5

List out the things around you which are circular in shape.

Disc



Curved and Straight Lines

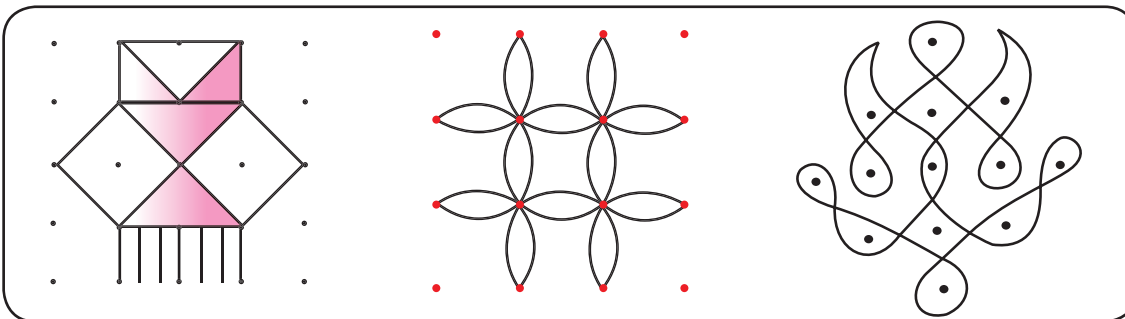


Pull a piece of thread tightly between your hands as shown in figure. It gives you a straight line.

Now bring the two hands closer. It gives you a curved line.



Curved lines and straight lines can be drawn with the help of dots. Look at these designs.



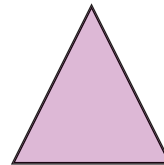
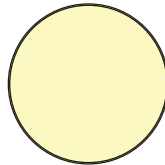
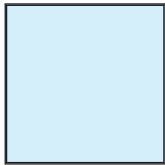
We call it as Kolam.





Exercise 1

Write the number of corners and sides of the shapes in the boxes :



corners

corners

corners

corners

sides

sides

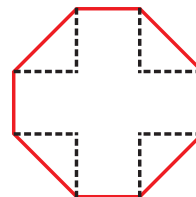
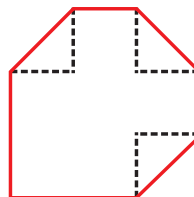
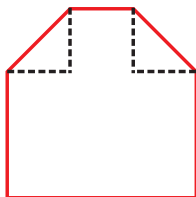
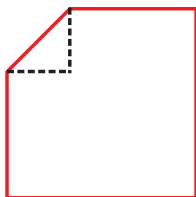
sides

sides



ACTIVITY 6

Fold a square paper at the corners as shown here and write the number of corners and sides obtained.



corners

corners

corners

corners

sides

sides

sides

sides



Try it !

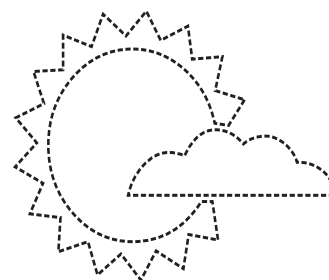
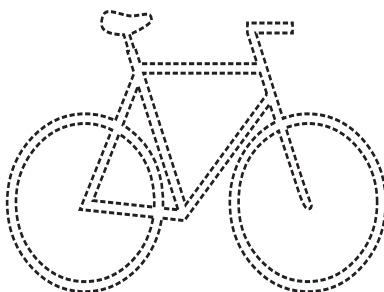
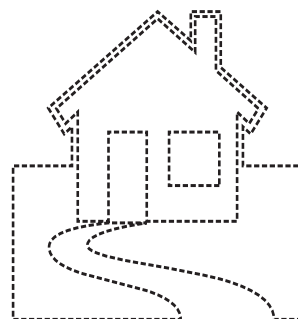
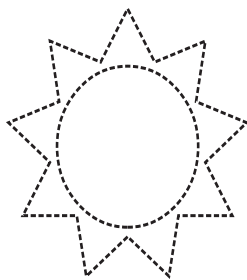
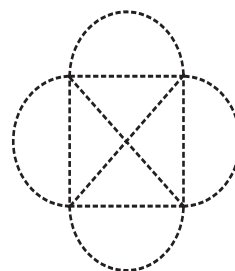
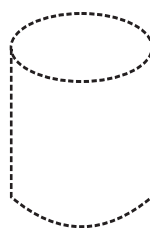
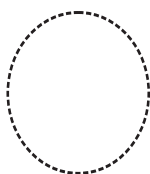
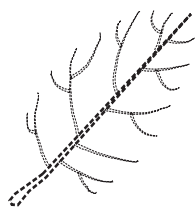
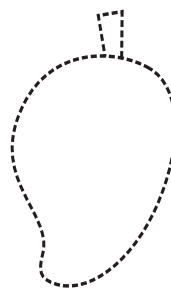
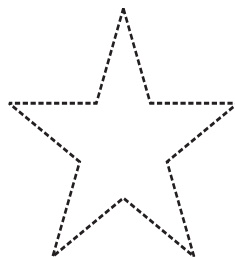
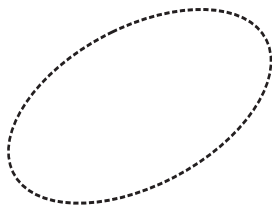
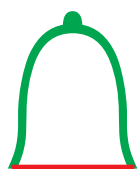


Fold all the corners of a square sheet in such a way that it still has only four corners!



ACTIVITY 7

Complete the diagram given below by using green colour and red colour crayons on curved lines and straight lines respectively.



Tangram

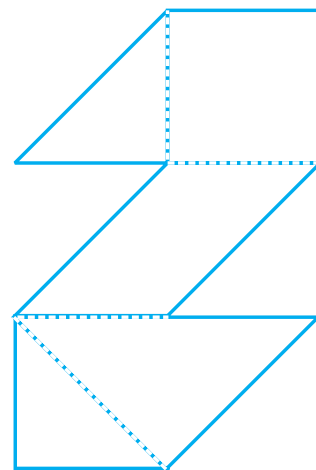
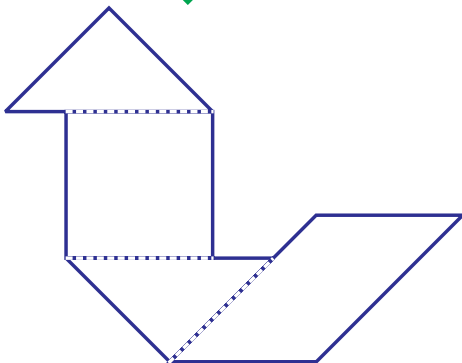
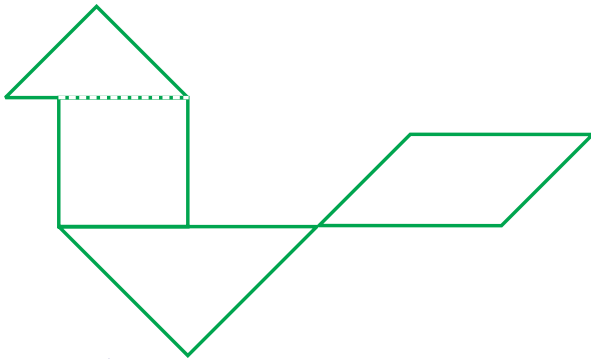
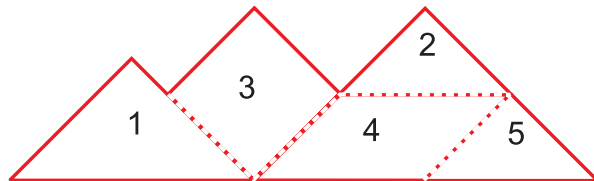
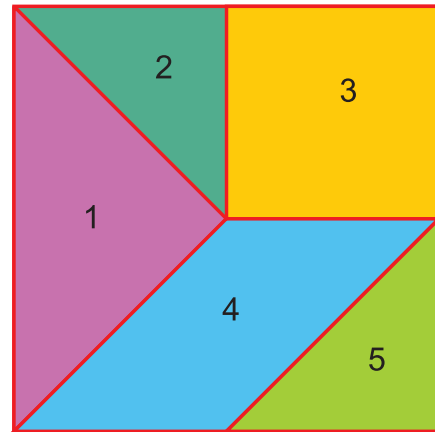
The tangram is an ancient chinese puzzle. From the pieces of the tangram, we can make many figures of animals, peoples and other things.



ACTIVITY 8

Prepare 5 pieces tangram and try to make the following figures with the suitable pieces.

5 Pieces tangram

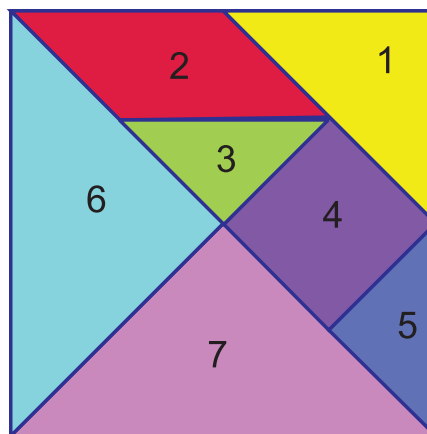




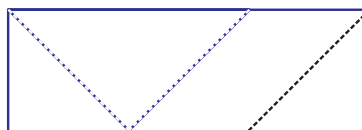
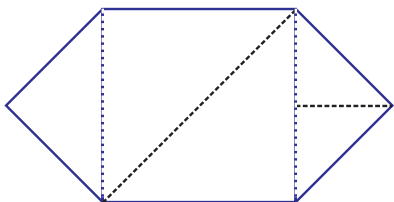
Project

Prepare 7 pieces tangram and do the following shapes.

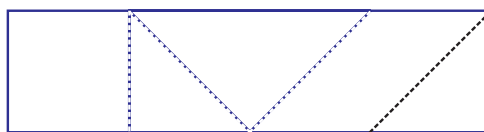
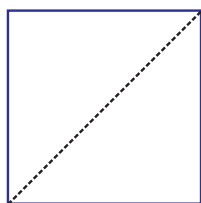
7 pieces tangram



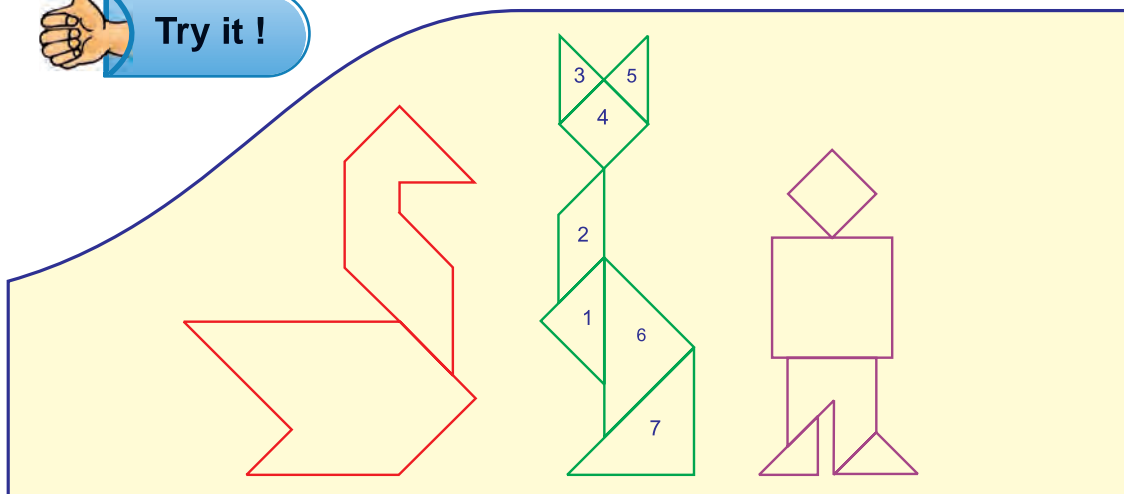
- i) use all the 5 triangles ii) use pieces 1, 2, 3 and 5



- iii) use only two triangles iv) use pieces 1, 2, 3, 4 and 5

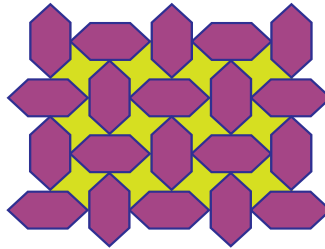
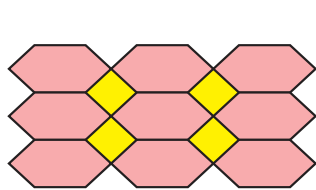
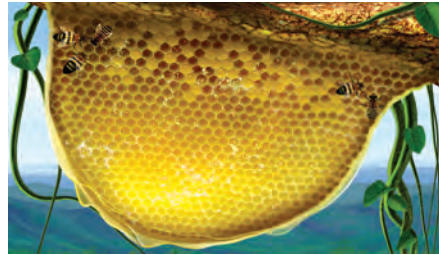
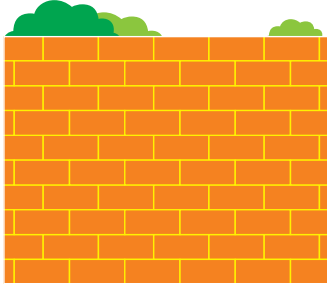


Try it !



Tessellation

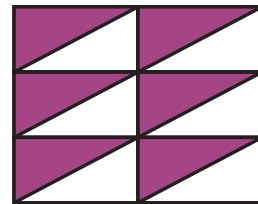
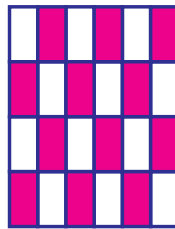
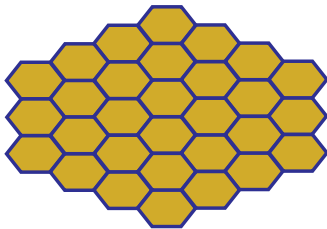
Observe the following pictures and discuss:



When you fit individual tiles together with no gaps or overlaps to fill a flat space, you have a **tiling**.

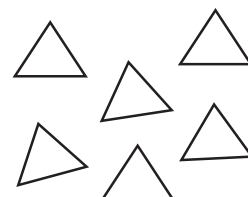
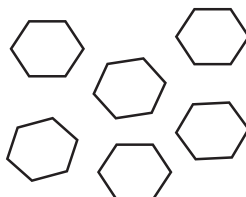
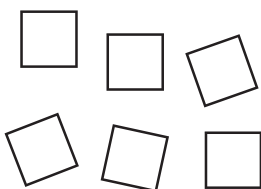
Example

Here are some examples :



ACTIVITY 9

Tessellate a new region using the following shapes :



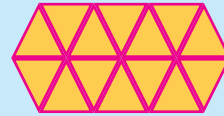


A tessellation is created when a shape is repeated over and over again covering a plane without any gaps or overlaps.

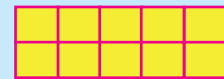
Triangles, Squares, Hexagons are the regular polygons tessellate in the plane.

Here are the examples of

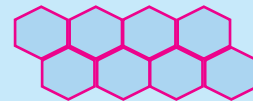
a tessellation of triangles



a tessellation of squares

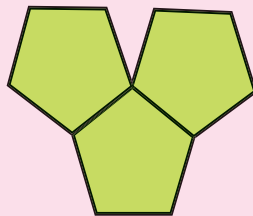


a tessellation of hexagons

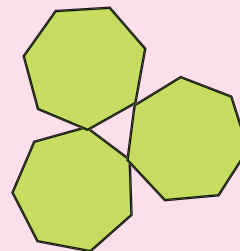


Observe the following Pictures :

Pentagons
(Five equal sides)



Heptagons
(Seven equal sides)



Though Pentagons and Heptagons are regular Polygons they do not tessellate.



Project

Observe the tessellated shapes around you and discuss



2

SHAPES AND FIGURES - II

Map

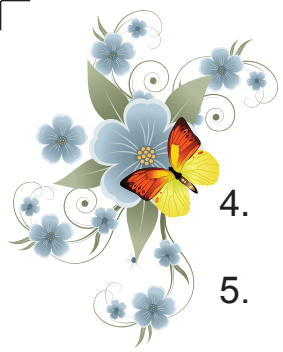
Mapping means locating the place with the help of landmarks.



Look at the above picture and discuss about the spatial relationship such as - nearer, in front of, between, behind, far away, above, below, adjacent, bottom, top, etc.....

Exercise 1

1. is adjacent to school. (hotel / bank)
2. is in front of the hospital. (park / fort)
3. is far away from the post office. (stadium / mountain)

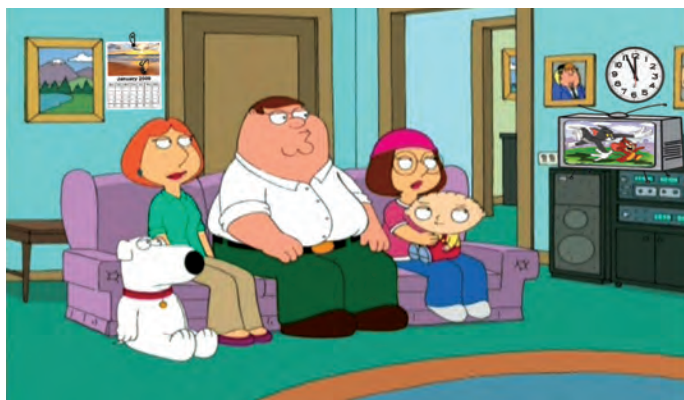


4. Stadium is the school. (adjacent / behind)
5. Park is the post office and the bank.
(in between / in front of)
6. Court and hospital are to each other.
(behind / adjacent)
7. Flag post is at the of the school. (in front / centre)
8. River is in front of the (Park / Stadium)
9. The post office is surrounded by (mountain / trees)
10. Stadium is situated at the of the map.
(top / bottom)

we can easily find out the location with
the help of map.



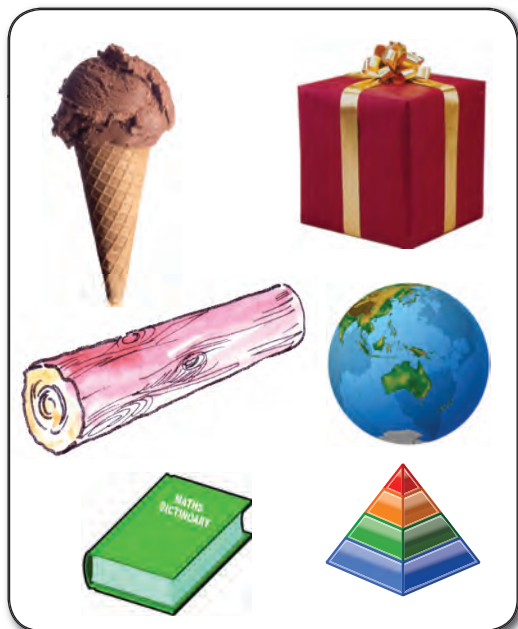
Discuss the spatial relationship among the persons, objects and places found in the picture using the words such as below, above, under, on, in, between, etc.,



Project

Try to draw a map of your house and school.

Solid shapes



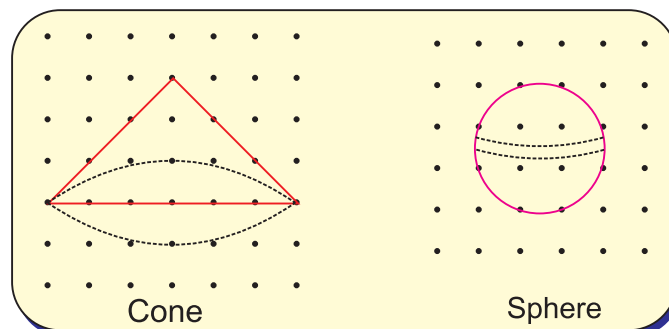
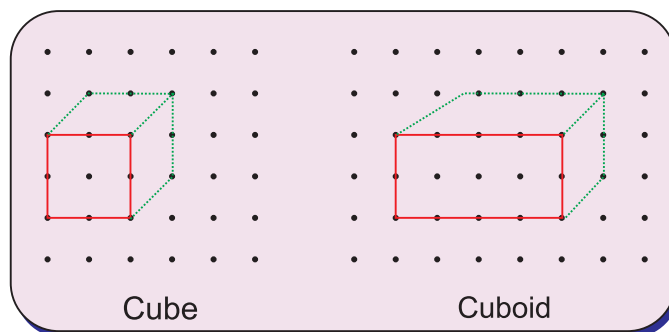
Solid shapes have 3 characteristics
length, breadth and height.

These are also
called 3-D objects.



ACTIVITY 1

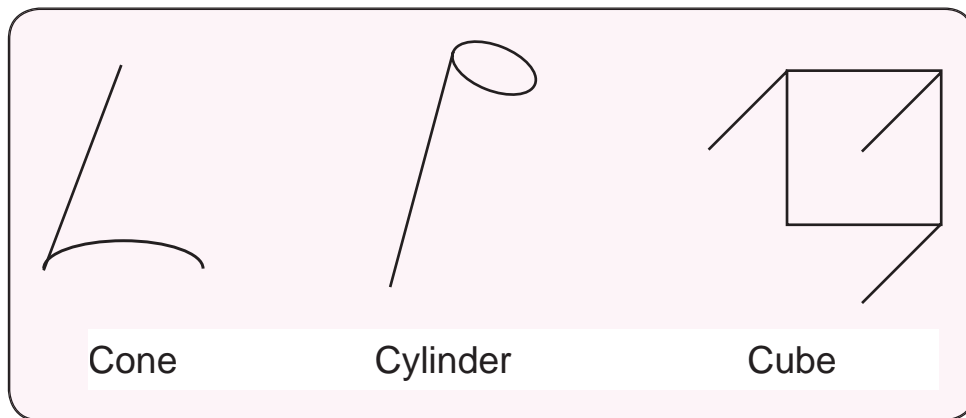
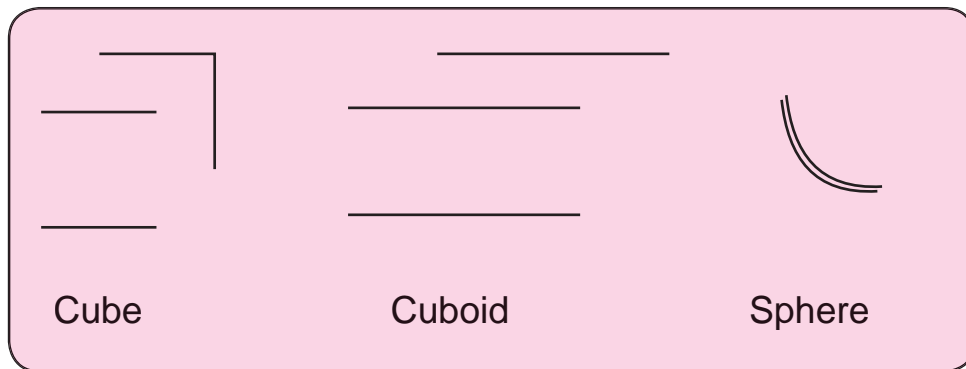
Draw the solid shapes on the dot-grid using straight lines and curves :





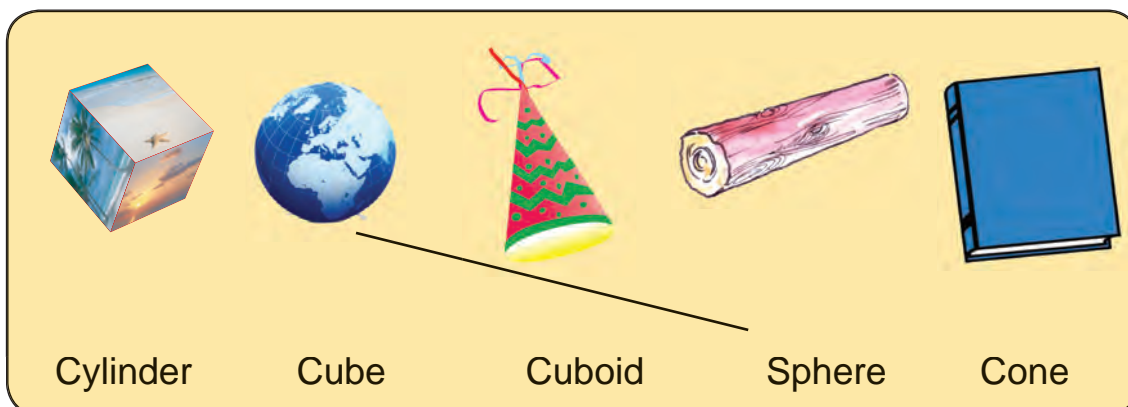
ACTIVITY 2

Draw the incomplete solid shapes and colour it :

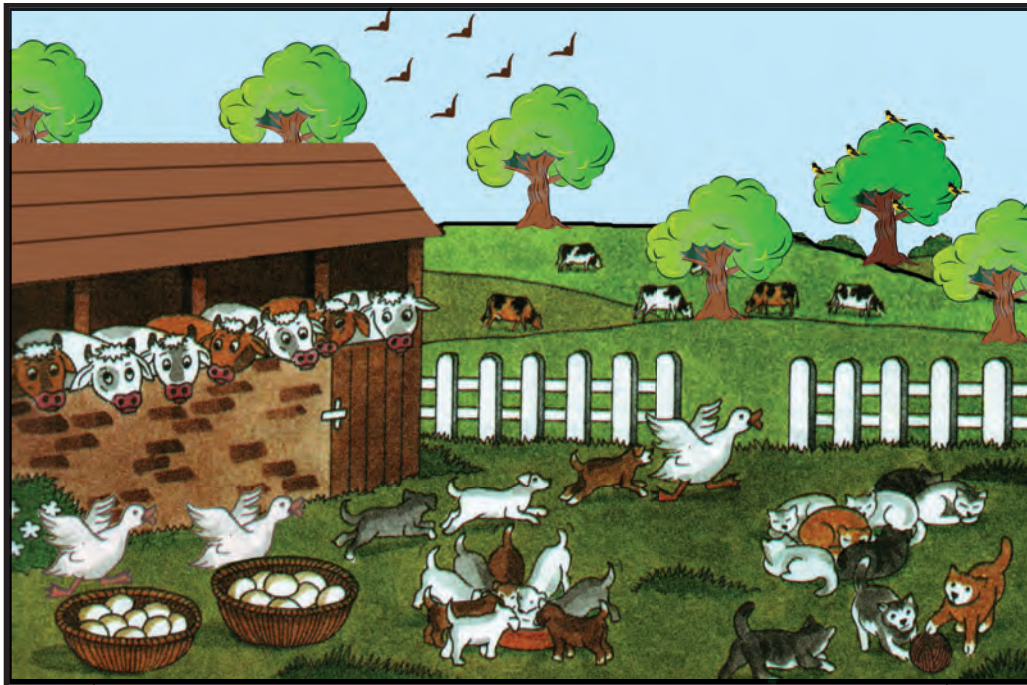


Exercise 2

Match the solid shapes to its name :



Recall



1. Look at the picture and answer the following :

1. Number of cows.
2. Number of cats.
3. Number of trees.
4. Number of eggs.
5. Number of birds.
6. Number of ducks.
7. Number of dogs.
8. Number of flowers.



2. Write the place value of the circled digit :

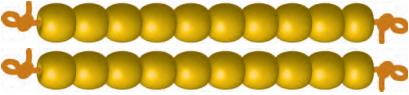

1. 5 (4)

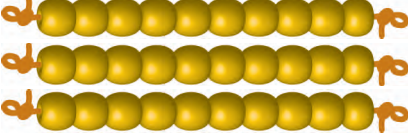

2. (7) 1

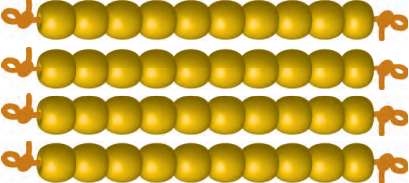

3. (6) 3

4. 9 (8)

3. Count the beads and write the numerals in the boxes :


1.   =

2.   =


3.   =

4. Write the missing numbers :

1. 

2. 

3. 

4. 



Try it !

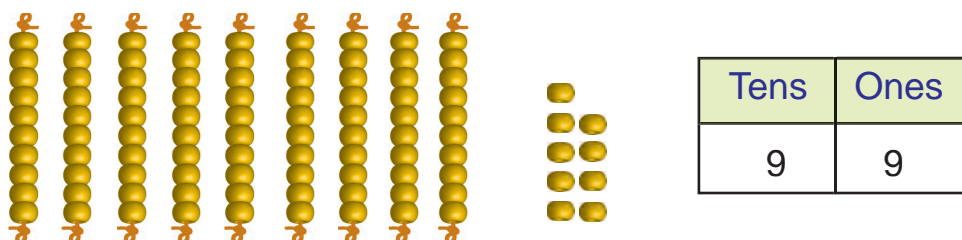
If you add 1 to me, I will become one less than 100. Who am I ?

Number sequence upto 1000

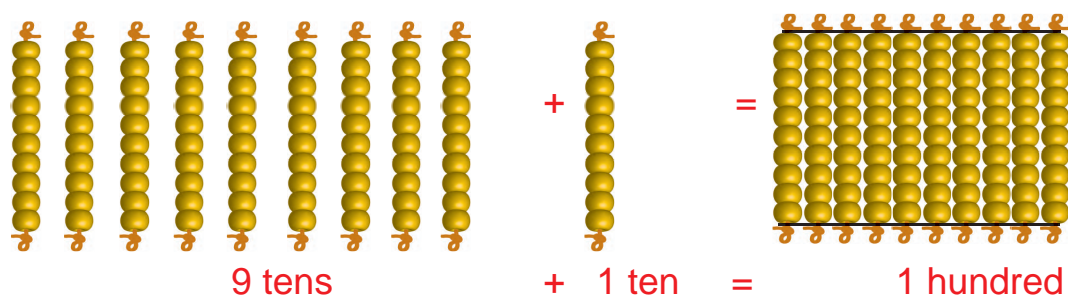
Numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 are one digit numbers.

Numbers from 10 to 99 are called two digit numbers.

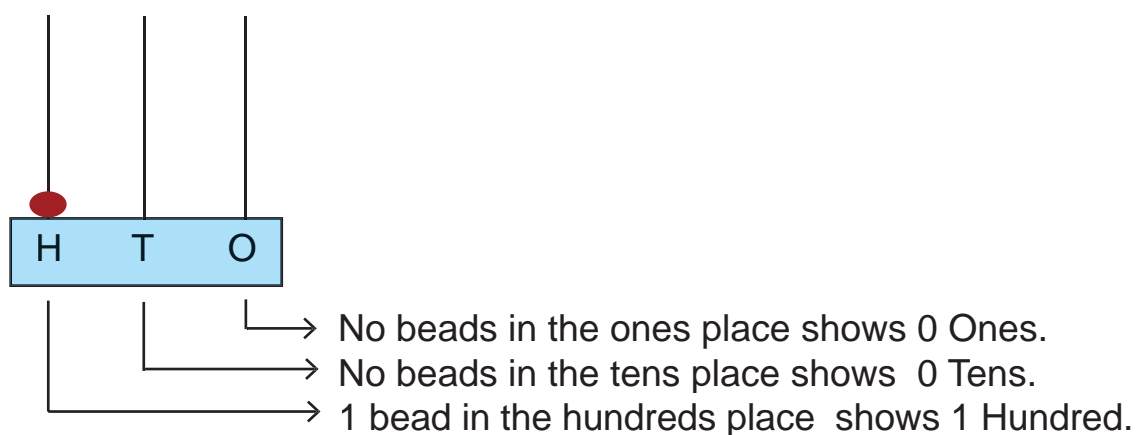
Number 99 is the biggest two digit number.



Adding 1 more bead to 99 beads, we get one hundred.



Shall we represent the number 100 in abacus?

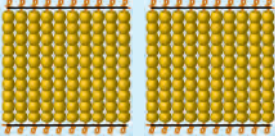
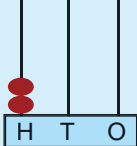
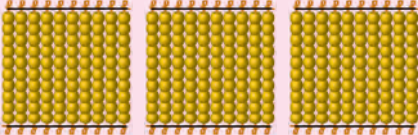
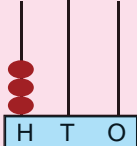
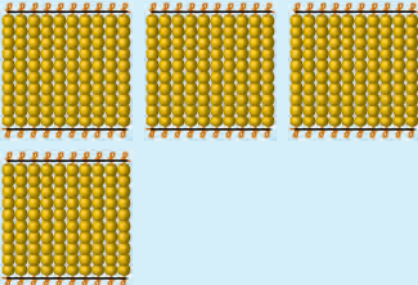
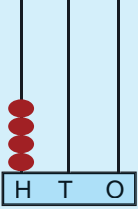
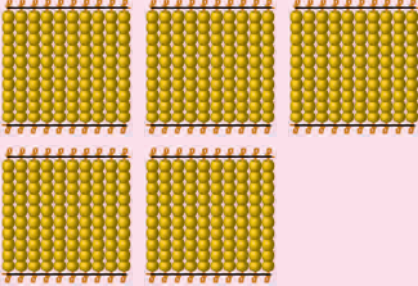
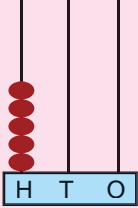
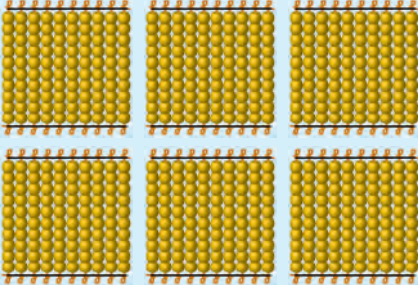
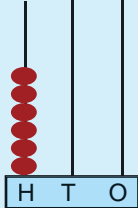


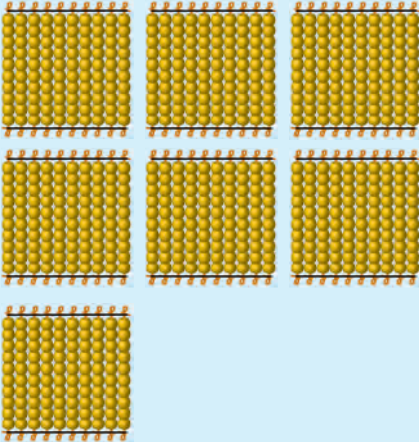
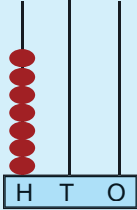
Hundreds	Tens	Ones
1	0	0



Counting in Hundreds

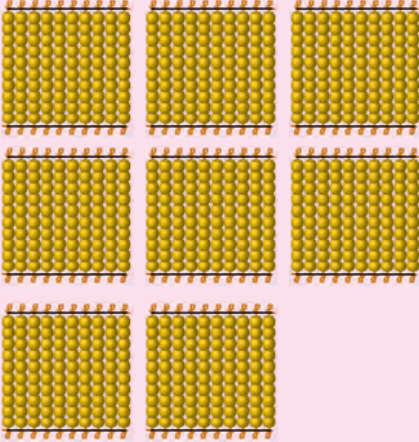
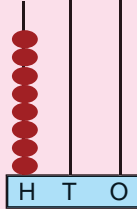
Representing numbers from 200 – 1000

Place value		Number name						
		<table border="1" data-bbox="881 497 1089 613"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>2</td><td>0</td><td>0</td></tr></table> Two Hundred	H	T	O	2	0	0
H	T	O						
2	0	0						
		<table border="1" data-bbox="881 714 1089 830"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>3</td><td>0</td><td>0</td></tr></table> Three Hundred	H	T	O	3	0	0
H	T	O						
3	0	0						
		<table border="1" data-bbox="881 994 1089 1110"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>4</td><td>0</td><td>0</td></tr></table> Four Hundred	H	T	O	4	0	0
H	T	O						
4	0	0						
		<table border="1" data-bbox="881 1319 1089 1435"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>5</td><td>0</td><td>0</td></tr></table> Five Hundred	H	T	O	5	0	0
H	T	O						
5	0	0						
		<table border="1" data-bbox="881 1645 1089 1761"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>6</td><td>0</td><td>0</td></tr></table> Six Hundred	H	T	O	6	0	0
H	T	O						
6	0	0						

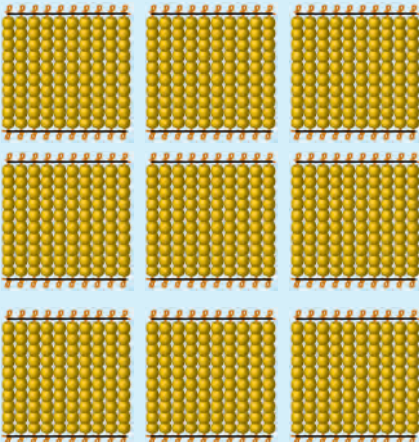
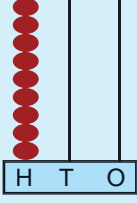
H	T	O
7	0	0

Seven Hundred

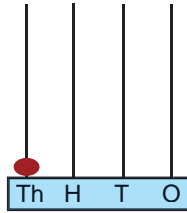
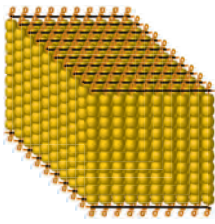
H	T	O
8	0	0

Eight Hundred

H	T	O
9	0	0

Nine Hundred



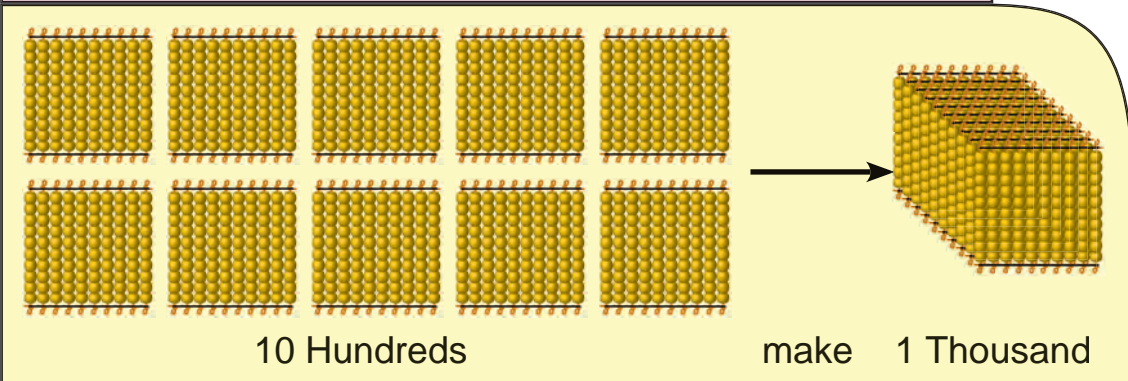
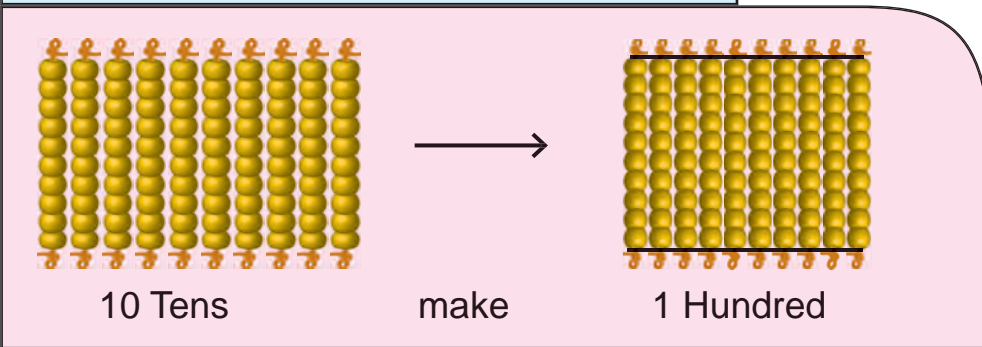
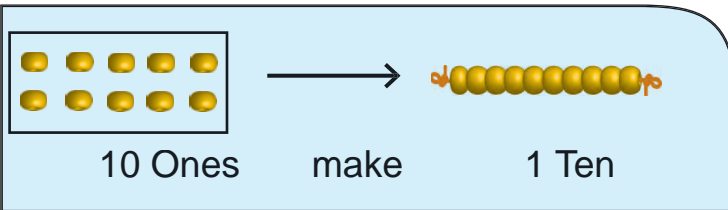
Th	H	T	O
1	0	0	0

**Ten hundred
or
One Thousand**

**Thousand comes after
Hundreds place**



Remember

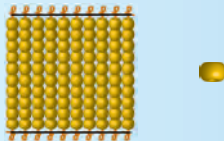

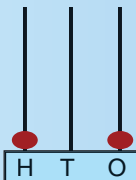
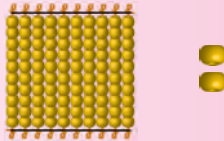

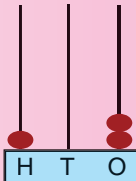
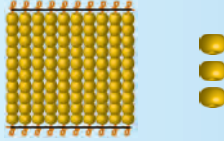

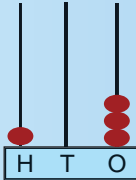
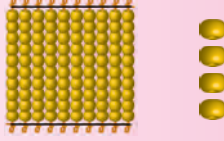

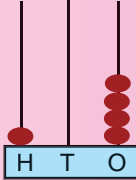
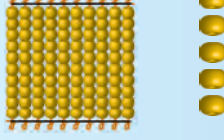

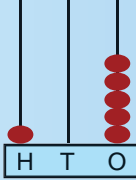
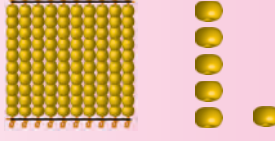

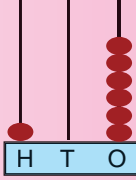


10 Ones = 1 Ten

10 Tens = 1 Hundred

10 Hundreds = 1 Thousand

Forming Numbers from 101 – 110

		Place value	Number name							
			<table border="1" data-bbox="794 457 1005 573"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>0</td><td>1</td></tr></table>	H	T	O	1	0	1	One hundred one
H	T	O								
1	0	1								
			<table border="1" data-bbox="794 700 1005 816"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>0</td><td>2</td></tr></table>	H	T	O	1	0	2	One hundred two
H	T	O								
1	0	2								
			<table border="1" data-bbox="794 942 1005 1058"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>0</td><td>3</td></tr></table>	H	T	O	1	0	3	One hundred three
H	T	O								
1	0	3								
			<table border="1" data-bbox="794 1185 1005 1301"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>0</td><td>4</td></tr></table>	H	T	O	1	0	4	One hundred four
H	T	O								
1	0	4								
			<table border="1" data-bbox="794 1406 1005 1522"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>0</td><td>5</td></tr></table>	H	T	O	1	0	5	One hundred five
H	T	O								
1	0	5								
			<table border="1" data-bbox="794 1670 1005 1786"><tr><td>H</td><td>T</td><td>O</td></tr><tr><td>1</td><td>0</td><td>6</td></tr></table>	H	T	O	1	0	6	One hundred six
H	T	O								
1	0	6								



<table border="1"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>7</td> </tr> </tbody> </table>	H	T	O	1	0	7	One hundred seven
H	T	O					
1	0	7					
<table border="1"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>8</td> </tr> </tbody> </table>	H	T	O	1	0	8	One hundred eight
H	T	O					
1	0	8					
<table border="1"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>9</td> </tr> </tbody> </table>	H	T	O	1	0	9	One hundred nine
H	T	O					
1	0	9					
<table border="1"> <thead> <tr> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	H	T	O	1	1	0	One hundred ten
H	T	O					
1	1	0					

Note to the teachers

**Use beads and spike abacus to
teach numbers from 101 - 1000**



Practise the students to read and write the numbers from
101 to 1000 as given in the next page.



Read the numbers from 101 – 200.

101	111	121	131	141	151	161	171	181	191
102	112	122	132	142	152	162	172	182	192
103	113	123	133	143	153	163	173	183	193
104	114	124	134	144	154	164	174	184	194
105	115	125	135	145	155	165	175	185	195
106	116	126	136	146	156	166	176	186	196
107	117	127	137	147	157	167	177	187	197
108	118	128	138	148	158	168	178	188	198
109	119	129	139	149	159	169	179	189	199
110	120	130	140	150	160	170	180	190	200

Write the missing numbers from 201 – 300.

201	211						271		
202									
					253				
			235						
				247					
						269			
210		230						290	300



Number names



The numeral 28 is read as
twenty eight.
Similarly 128 is read as
one hundred twenty eight.

Now write the
number names



Number	Number Names
137	One hundred thirty seven
172	
225	
248	
301	
346	
439	
482	
535	Five hundred thirty five
591	
648	
672	
720	
776	
800	
875	
909	Nine hundred nine
992	
999	
1000	One thousand

Note to the teacher





Practise the students to write the number
names upto 1000 in their note book.

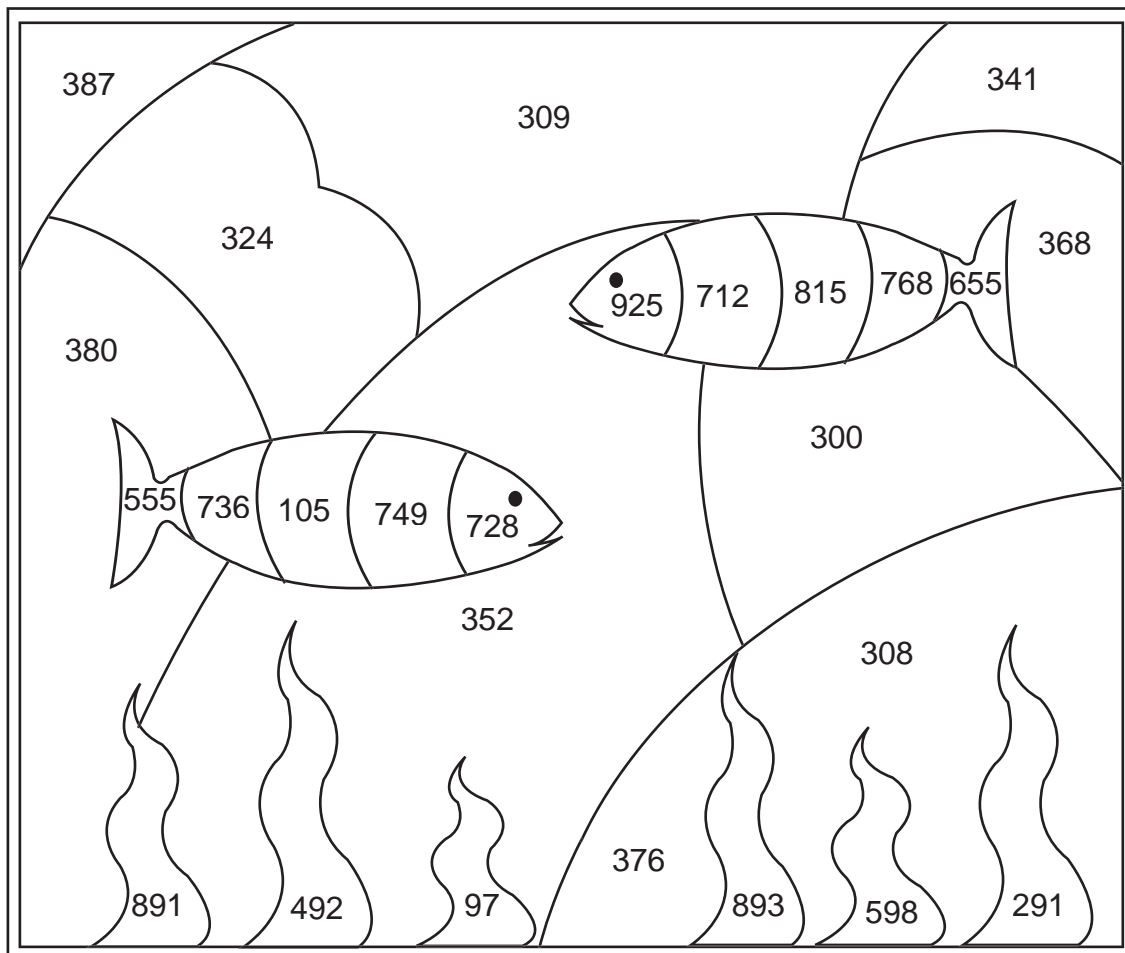


ACTIVITY 1



Colour the numbers with

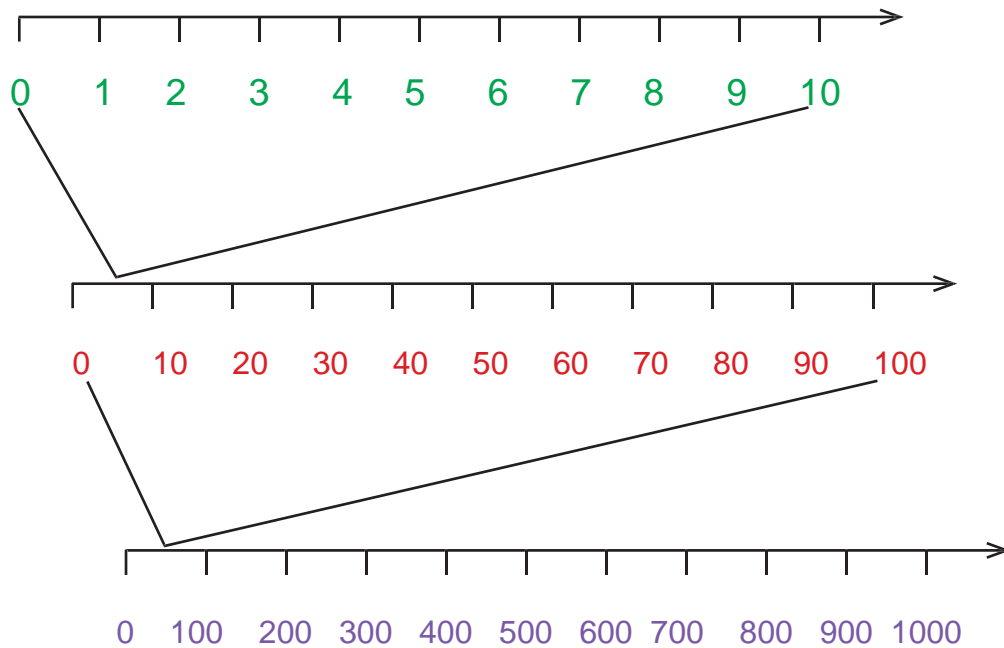
-  3 in the hundreds place by blue.
-  9 in the tens place by green.
-  5 in the ones place by orange.
-  7 in the hundreds place by red.



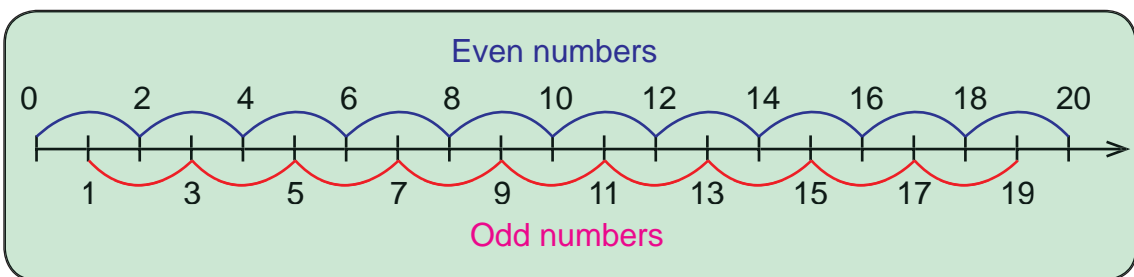


Number line

We can mark the numbers in a straight line at equal distances. Number line starts at 0 and goes on endlessly.



Even numbers and Odd numbers



The numbers 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30..... are even numbers.

The numbers 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29..... are odd numbers.



Note that even numbers end with 0, 2, 4, 6, 8 and odd numbers end with 1, 3, 5, 7 and 9.

In a class if there are 24 students then we can group them into two equal groups.

$$24 = 12 + 12$$

Even numbers form two equal groups.



In a class if there are 17 students we can not group them into two equal groups.

$$17 = 8 + 8 \text{ and balance is } 1$$

Odd numbers do not form two equal groups.



Try it !

Try the above activity for other odd and even numbers.

After every odd number there is an even number and after every even number there is an odd number.



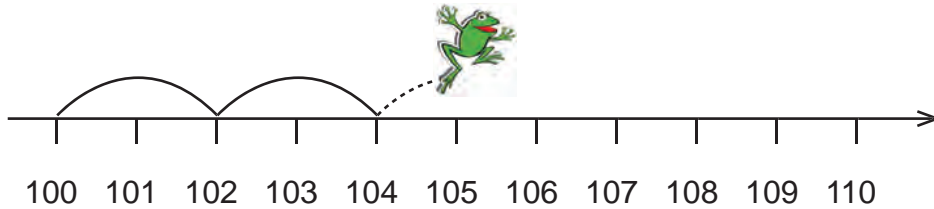
Exercise 1

Circle the even numbers	Circle the odd numbers
47, 52, 69, 70, 84	32, 41, 50, 67, 93
132, 145, 149, 174, 199	105, 116, 125, 142, 151
216, 400, 401, 432, 455	217, 232, 245, 342, 357
522, 564, 575, 587, 600	535, 540, 557, 561, 592
921, 926, 932, 938, 947	830, 841, 853, 862, 899



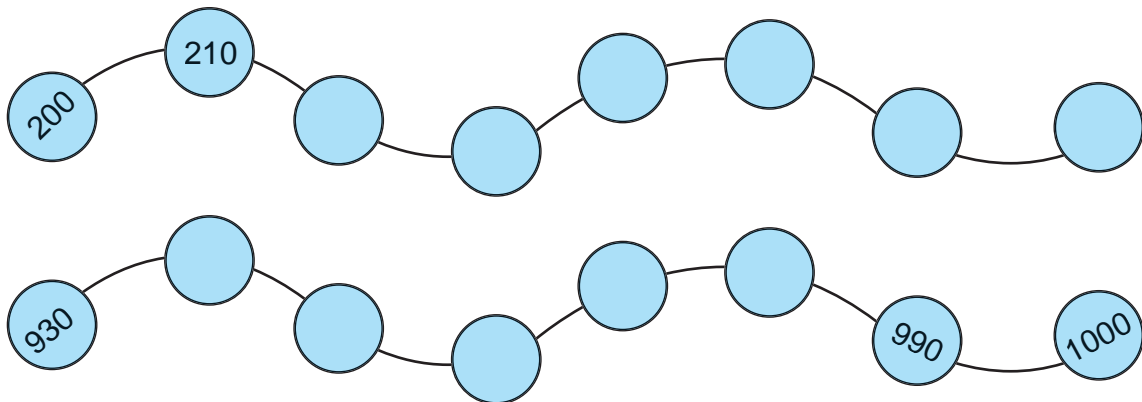
Skip counting in three digit numbers

A frog jumps on the number line in 2s.

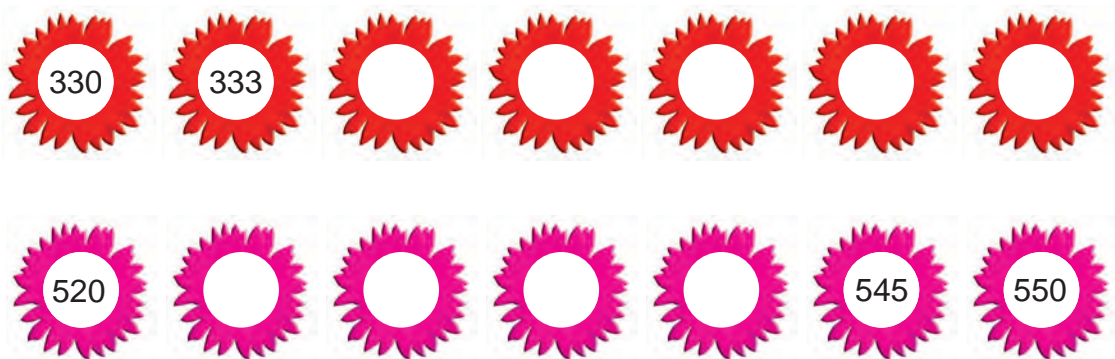


Help the frog to continue: 100, 102, 104, _____, _____, _____.

Count in 10s and complete the blanks :



Observe the patterns and complete the blanks:



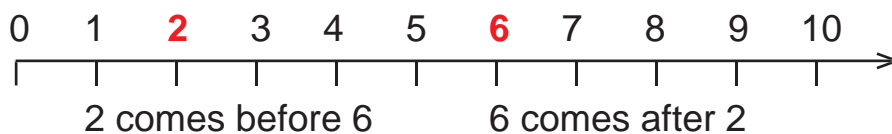
Comparison of numbers

Anitha has 2 chocolates and his sister Vanitha has 6 chocolates



Who has more?

They compare as follows:



- ☯ Number that comes before is smaller.
- ☯ Number that comes after is greater.

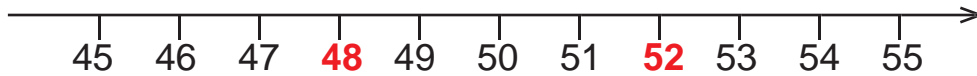
6 is more than 2

It is written as **6**  **2**

So Vanitha has more chocolates.



If Abinaya has collected 48 stamps and Gayathiri has 52 stamps.
Who has collected less stamps?



On the number line 48 comes before 52.

Hence 48 is less than 52.

It is written as 48 < 52.

So Abinaya has collected less stamps.

Balu has 12 sketch pens. Mani has also 12 sketch pens.
Who has more? or who has less?

While comparing, they have **equal** sketch pens.

It is written as 12 = 12.

Comparison of numbers with different digits.

The number which has more digits is a greater number.

Note:

All one digit numbers are smaller than any two digit number.
All two digit numbers are smaller than any three digit number.

Compare 98 and 112.

H	T	O
	9	8

H	T	O
1	1	2

The number 112 has **3** digits and 98 has only **2** digits.

So number 112 is greater than 98.

we write 112 > 98.

Compare the following sets of numbers and circle the smaller number.

87, 145

191, 32

123, 46

29, 165

Comparison of numbers with equal digits :

If the number of digits are equal, compare the digit in the hundreds place. The number which has a greater digit in the hundreds place is greater.

Compare 123 and 200

H	T	O
1	2	3

H	T	O
2	0	0

2 is greater than 1, so the number 200 is greater than 123.

We write 200 $>$ 123, we can also say 123 $<$ 200.

If the digits in the hundreds place are same, compare the digits in the tens place. The number which has the greater digit in the tens place is the greater number.

Compare 156 and 131

H	T	O
1	5	6

H	T	O
1	3	1

The digits in the hundred place are the same. Compare the digits in the tens place.

5 is greater than 3. So the number 156 is greater than 131.

We write 156 $>$ 131, We can also say 131 $<$ 156.



If the digits in the hundreds and the tens place are same, compare the digits in the ones place. The number which has the greater digit in the ones place is the greater number.

Compare 165 and 168

H	T	O
1	6	5

H	T	O
1	6	8

The digits in the hundreds place and tens place are the same. Comparing the digits in the ones place.

8 is greater than 5, So the number 168 is greater than 165.

We write 168 $>$ 165. We can also say 165 $<$ 168.

Compare 326 and 326

H	T	O
3	2	6

H	T	O
3	2	6

The digits in the hundreds place, tens place and ones place are same.

So, 326 $=$ 326

Compare the numbers in each of the following sets and circle the smaller number.

173, 165

592, 595

335, 383

440, 404



Exercise 2

Write $<$, $>$ or $=$ in the boxes provided:

312

483

761

683

419

547

416

419

408

308

394

387

387

487

782

782

512

512

983

990

Order of numbers

When we write the numbers from smaller to greater, we call it ascending order. When we write numbers from greater to smaller, we call it descending order.

We arrange the numbers **144**, **148** and **145** in ascending order and in descending order.

Look at the number line :



144 is smaller than **145** and

145 is smaller than **148**.



Ascending order:

$$144 < 145 < 148$$

144, 145, 148

Descending order:

$$148 > 145 > 144$$

148, 145, 144



Exercise 3

1. Arrange the following numbers in ascending order :

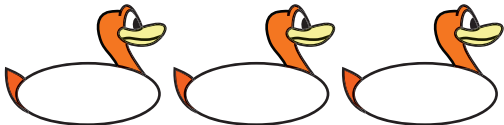
(a) 248, 253, 384



(b) 492, 499, 493



(c) 569, 539, 589



(d) 795, 759, 756



2. Arrange the following numbers in descending order :

(a) 205, 210, 290



(b) 212, 503, 369



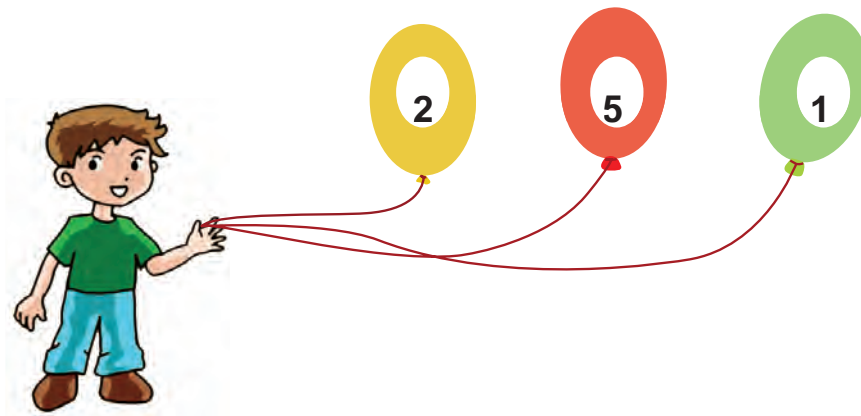
(c) 323, 303, 332



(d) 405, 407, 437

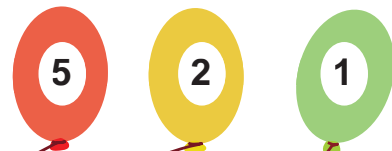


Form greatest and smallest numbers using given digits



How can we form the greatest number from these given digits?

Arrange the digits in descending order to form the greatest number.



Greatest number : 521



Arrange the digits in ascending order to form the smallest number.

Smallest number : 125



Let us see another example :



1, 0, 3 are given numbers.



By using these numbers shall we form the greatest and smallest 3 - digit number?



The greatest number is 310.



The smallest number is 013.



But, 013 is a two digit number.



Oh! sorry!
What to do ?



Numbers should not begin with zero.



Yes I got it.
So the smallest number is 103.








Exercise 4

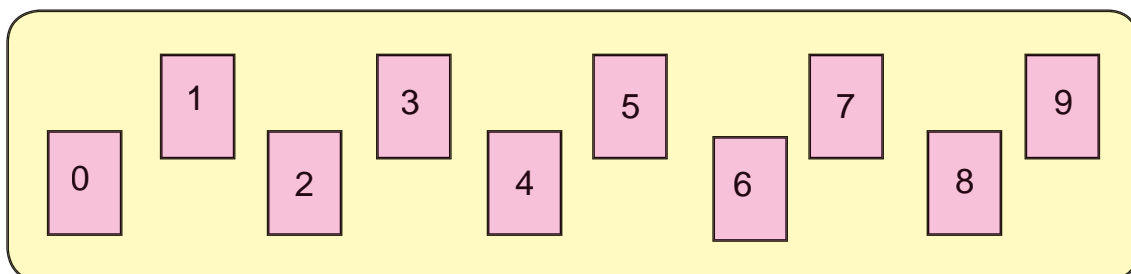
Form the greatest and smallest 3 digit number.

Digits	Greatest number	Smallest number
5 7 4		
3 6 9		
8 0 1		



ACTIVITY 2

-  Make 10 number cards from 0 to 9 .
-  Put the cards down ward.
-  Open any three cards and make possible .
three digit numbers.
-  Ask the students to form the greatest number.
-  Ask the students to form the smallest number.





Date:.....

1) Fill in the missing numbers.

551		561							596
552									
553									
			570						600

2) Write the number names.



3. Fill in the blanks.

- a) 266 has _____ Hundreds _____ Tens _____ Ones
- b) 405 has _____ Hundreds _____ Tens _____ Ones
- c) 574 has _____ Hundreds _____ Tens _____ Ones
- d) 896 has _____ Hundreds _____ Tens _____ Ones
- e) 999 has _____ Hundreds _____ Tens _____ Ones

4. Put the box around the correct number.

- | | | | |
|-----------------------------|------|------|-----|
| a) 3 Hundreds 9 Tens 0 Ones | 309, | 390, | 903 |
| b) 5 Hundreds 2 Tens 2 Ones | 522, | 225, | 520 |
| c) 6 Hundreds 5 Tens 1 Ones | 156, | 651, | 516 |
| d) 9 Hundreds 0 Tens 9 Ones | 990, | 909, | 900 |

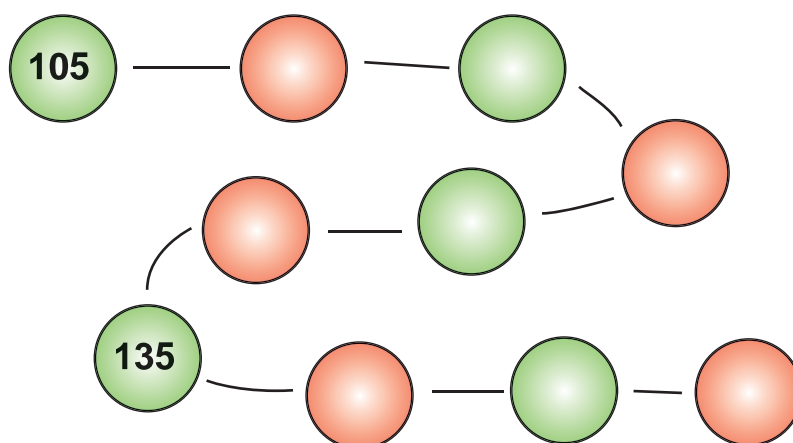
5. Write the place value for the circled digits.

a) 7 2 5

b) 9 4 7

c) 1 4 5

6. Skip count by fives.



7. Find out the odd and even numbers.

133, 146, 327, 548, 575, 932, 601, 99, 74, 500.

Odd numbers :

Even numbers :

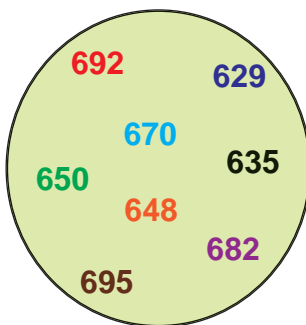


8. Compare the numbers and write $<$, $>$, $=$ in the box.

118	<input type="text"/>	340
225	<input type="text"/>	176
347	<input type="text"/>	325

875	<input type="text"/>	600
500	<input type="text"/>	500
925	<input type="text"/>	928

9. Write the numbers in ascending and descending order.



Ascending order :

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

Descending order :

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

10. Using the numerals 7, 4, and 5, write the greatest and the smallest 3 digit number.

Greatest number :

Smallest number :

Comments

Teacher's signature

4

ADDITION

Recall

Complete the table:

+	11	12	13	14	15	16	17	18	19	20
0										
1										
2										
3			16							
4										
5										
6										
7						23				
8										
9										
10										30

Fill in the blanks using the above table :

$3 + 15 = \square$

$\square + 14 = 20$

$4 + 19 = \square$

$13 + \square = 22$

$16 + 3 = \square$

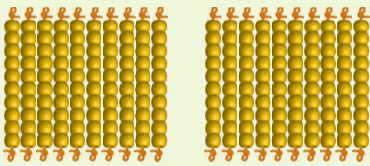

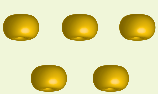
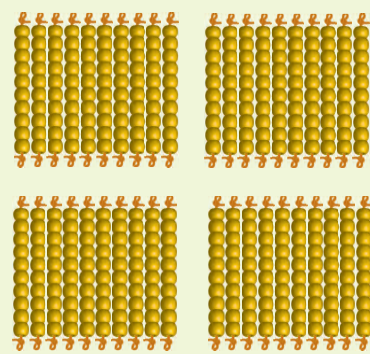
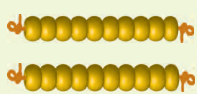

$\square + \square = 28$



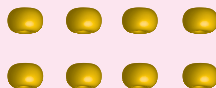
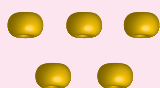
Addition of three digit numbers (without regrouping)

Add :

$$\begin{array}{r} 215 \\ + 423 \\ \hline \hline \end{array}$$

H	T	O
 2	 1	 5
 4	 2	 3

First add ones:

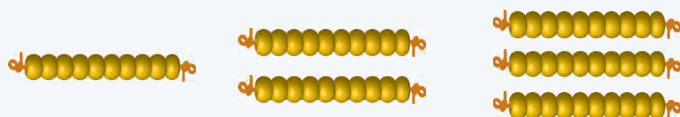


$$5 + 3 = 8$$

H	T	O
2	1	5
4	2	3
		8

We write 8 in ones place.

Next add tens :

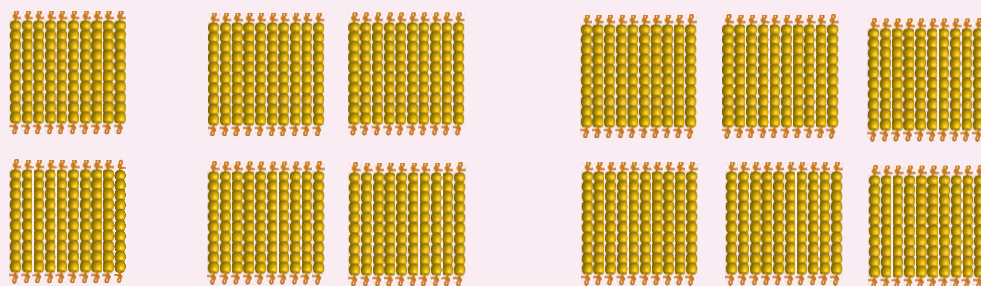


$$1 + 2 = 3$$

Write 3 in tens place.

H	T	O
2	1	5
4	2	3
<hr/>		
	3	8
<hr/>		

Finally add hundreds :



$$2 + 4 = 6$$

Write 6 in hundreds place

H	T	O
2	1	5
4	2	3
<hr/>		
6	3	8
<hr/>		

$$\begin{array}{r} 215 \\ + 423 \\ \hline 638 \\ \hline \end{array}$$



Keep in mind:

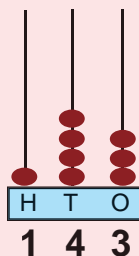
In addition, first we add ones then tens and hundreds in order.



Addition through spike abacus.

Add

$$\begin{array}{r} 143 \\ + 512 \\ \hline \end{array}$$

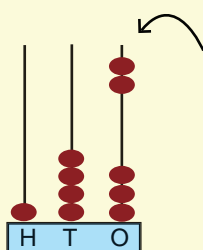


Now we have to add 512 with 143.

Step 1 :

Add ones:

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ 1 \quad 4 \quad 3 \\ + 5 \quad 1 \quad 2 \\ \hline \end{array}$$



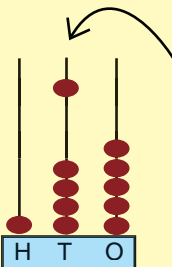
Put **2** beads in ones place

$$3 + 2 = 5$$

Step 2 :

Add tens

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ 1 \quad 4 \quad 3 \\ + 5 \quad 1 \quad 2 \\ \hline \end{array}$$



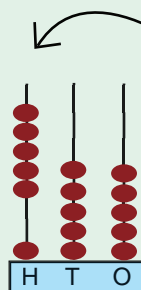
Put **1** bead in tens place

$$4 + 1 = 5$$

Step 3 :

Add hundreds :

H	T	O
1	4	3
+ 5	1	2
<hr/>		
6	5	5
<hr/>		



Put 5 beads in hundreds place

$$1 + 5 = 6$$

So the sum is 655

Example

Add:

	5	2	2
+	4	5	3
<hr/>			
<hr/>			

Add ones

Add tens

Step 1 :

	H	T	O
	5	2	2
+	4	5	3
<hr/>			
			5
<hr/>			

Step 2 :

	H	T	O
	5	2	2
+	4	5	3
<hr/>			
	7	5	
<hr/>			

47



Step 3 :

Add hundreds

	H	T	O
	5	2	2
+	4	5	3
<hr/>			
	9	7	5
<hr/>			

	5	2	2
+	4	5	3
<hr/>			
	9	7	5
<hr/>			



Exercise 1

Add the following numbers :

	5	4	3
+	4	2	1
<hr/>			
<div></div>			

	2	3	8
+	6	3	1
<hr/>			
<div></div>			

	5	2	2
+	4	2	6
<hr/>			
<div></div>			

	1	0	1
	1	2	1
+	7	0	3
<hr/>			
<div></div>			

	6	3	0
	2	5	4
+	1	1	3
<hr/>			
<div></div>			

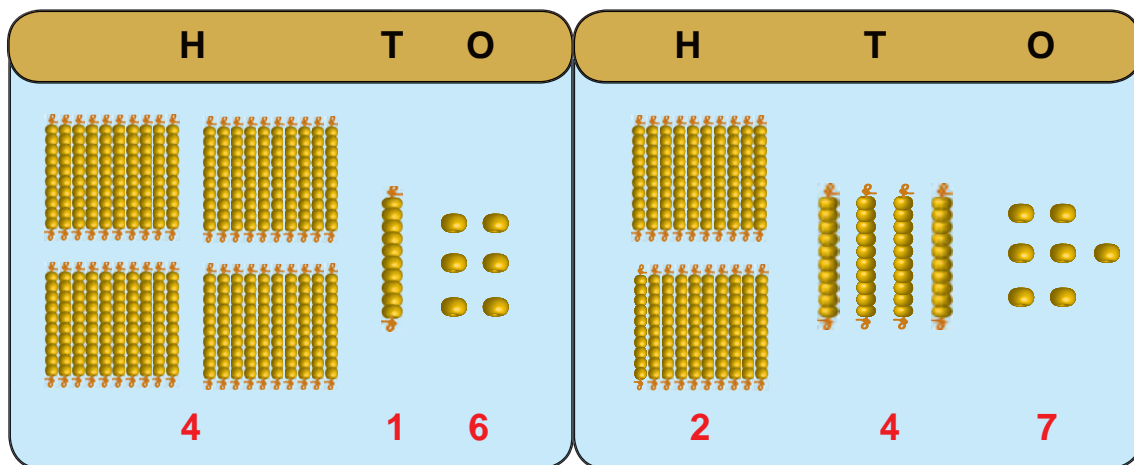
	2	3	4
	1	0	3
+	3	1	1
<hr/>			
<div></div>			

Addition of three digit numbers (with regrouping)

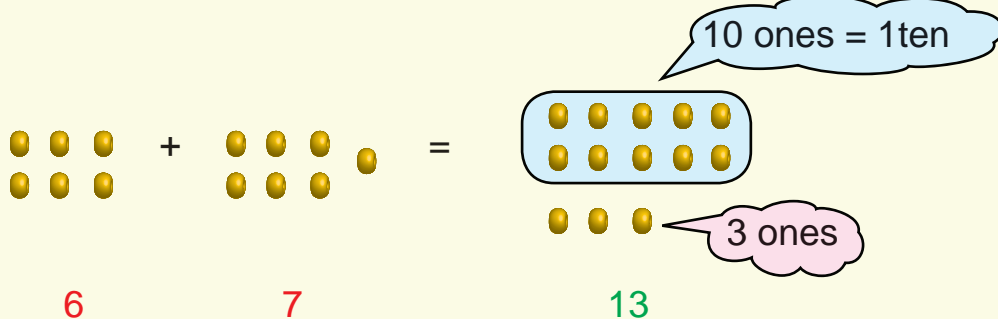
Example

Add :

$$\begin{array}{r} 215 \\ + 423 \\ \hline \hline \end{array}$$



First add ones:



$$13 \text{ ones} = 1 \text{ ten} + 3 \text{ ones}$$

So, we put 3 in ones place and carry over 1 ten to tens place.



H	T	O
	1	
4	1	6
+ 2	4	7
		3

6 + 7 = 13 ones
13 ones = 1 ten + 3 ones

Next add tens:

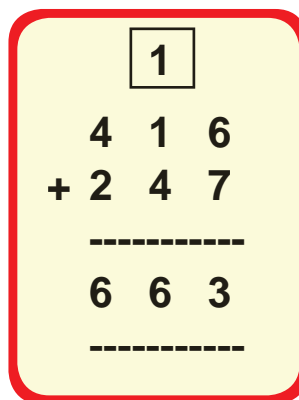
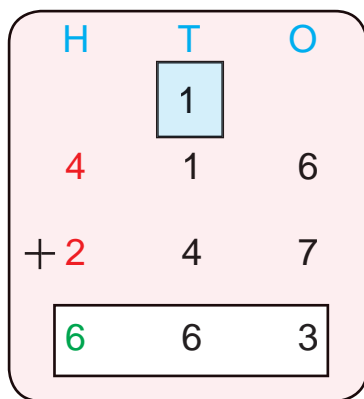
1 + 1 + 4 = 6

H	T	O
	1	
4	1	6
+ 2	4	7
	6	3

1 + 1 + 4 = 6 tens

Finally add hundreds:

4 + 2 = 6



Note to the teachers

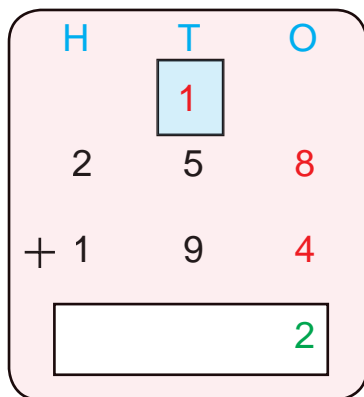
**Demonstrate
addition with regrouping through
Spike abacus.**

Example

Add:

2	5	8
+ 1	9	4

Add ones :



$8 + 4 = 12$ ones,

Regroup 12 ones = 1 ten + 2 ones

Put 2 in ones place and carry over

1 to tens place.

51



Add Tens :

H	T	O
1	1	
2	5	8
+ 1	9	4
	5	2

$$1 + 5 + 9 = 15 \text{ tens ,}$$

Regroup **15 tens = 1 hundred + 5 tens**

Put **5** in tens place and carry over

1 to hundreds place.

Add Hundreds :

H	T	O
1	1	
2	5	8
+ 1	9	4
4	5	2

$$1 + 2 + 1 = 4 \text{ hundreds,}$$

Put **4** in hundreds place.

1	1	
2	5	8
+ 1	9	4

4	5	2



Exercise 2

Add the following numbers :

a)	b)	c)	d)	e)
3 5 8	3 3 9	2 8 5	5 9 8	4 5 5
+ 4 9 0	+ 2 7 2	+ 5 4 2	+ 2 0 9	+ 5 4 5



ACTIVITY 1

Materials required:

0 to 4 number cards (8 sets).

Step 1 :

Form smaller groups with less number of students.

Step 2 :

Give 2 sets of number cards to each group.

Step 3 :

Using the number cards, form two 3-digit numbers and add them.

Step 4 :

The group which worked out more problems correctly is the winner group. The teacher can award the winner group as

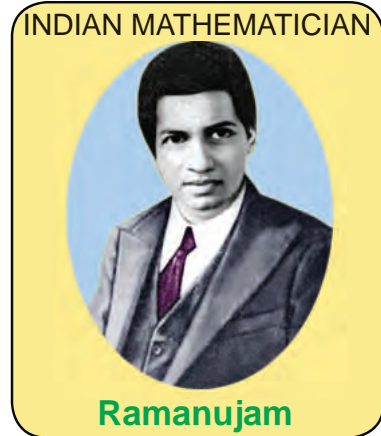


Ramanujam group



Note to the teacher

**Tell the interesting facts about
great mathematician
Ramanujam.**





Statement problems



Exercise 3

In a parking place there are 275 scooters and 112 cars.

How many vehicles are there in all ?



Scooters = 275

Cars = 112

Total vehicles =

A fruit seller sold 195 apples, 287 mangoes and 35 bananas.

How many fruits did he sell?

Apples = 195

Mangoes = 287

Bananas = 35

Sold fruits =



A train compartment is carrying 132 people. Another compartment is carrying 129 people. How many people are there in both of the compartment?



First compartment =

Second compartment =

Total number of people =



In a school 456 students like to play cricket and 395 students like to play foot ball. How many students altogether like to play in the school?



Cricket =

Football =

Total Students =

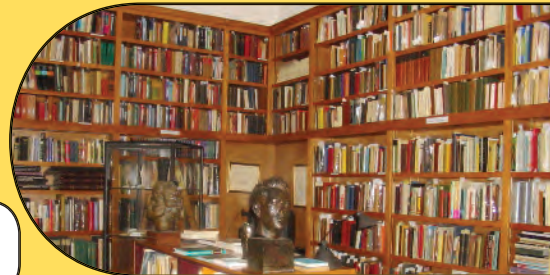
In a library there are 427 story books, 152 college books and 133 engineering books. How many books are there in all?

Story books =

College books =

Engineering books =

Total books =



Exercise 4

Do the statement problems in your note book.

1. A tailor bought 125 white buttons and 165 red buttons. How many buttons did the tailor buy?
2. A book seller supplied 789 Tamil books and 149 English books to a library. How many books did he supply to the library?
3. In a grove there are 279 coconut trees and 387 mango trees. How many trees are there in the grove?



Date:.....

1) Add the following:

$$\begin{array}{r} 3 \quad 1 \quad 2 \\ + 4 \quad 6 \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \quad 3 \quad 4 \\ + 4 \quad 3 \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 7 \quad 6 \\ + 4 \quad 0 \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 4 \quad 8 \\ + 3 \quad 2 \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 0 \quad 3 \\ + 1 \quad 5 \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 8 \quad 5 \\ + 1 \quad 2 \quad 9 \\ \hline \end{array}$$

2) Express the following in numerals and add them.

a) One hundred eighty, Four hundred sixty five.

$$\begin{array}{r} 1 \quad 8 \quad 0 \\ + 4 \quad 6 \quad 5 \\ \hline \end{array}$$

b) Four hundred ten, Two hundred ninety five.

$$\begin{array}{r} \\ + \\ \hline \end{array}$$

c) Five hundred ninety seven,
Three hundred thirty two.

$$\begin{array}{r} \\ + \\ \hline \end{array}$$

d) Two hundred seventy nine,
Six hundred forty one.

+

e) Three hundred eighty two,
Two hundred ninety one.

+

3) Answer the following statement problems.

a) In a shop 101 dresses were sold on Monday and 221 dresses were sold on Tuesday. How many dresses were sold in two days?

b) In a village, there are 272 men, 231 women and 211 children. What is the total population of the village?

c) The principal of a school gave 111 medals to those who had done well in sports and 99 medals to those who had done well in tests. Altogether, how many medals did the principal give?

Comments

Teacher's signature

5

SUBTRACTION

Recall

In the previous class, we have studied about the subtraction.



Balls in all

6

—



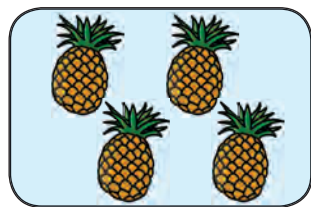
Take away

2

=



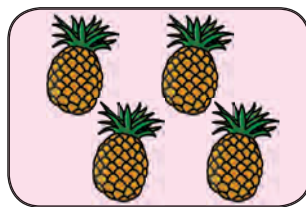
Balls left



Pine apples in all

4

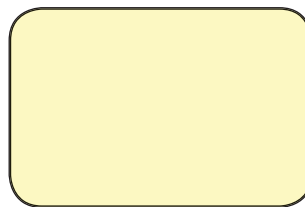
—



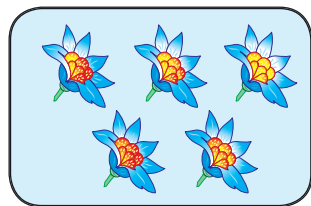
Take away

4

=



Pine apples left



Flowers in all

5

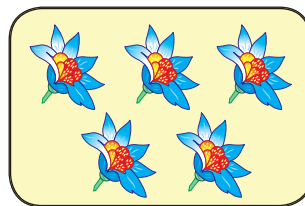
—



Take away

0

=



Flowers left





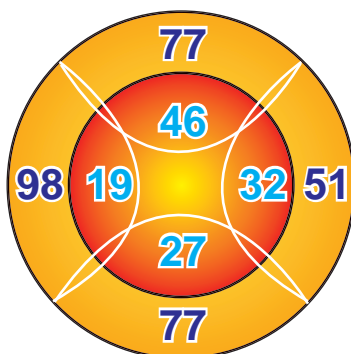
ACTIVITY 1

Colour the subtraction problems that gives you the number in the first column.

4	$10 - 3$	$10 - 6$	$9 - 5$	$4 - 5$
8	$9 - 1$	$10 - 3$	$8 - 1$	$10 - 2$
2	$6 - 4$	$7 - 2$	$2 - 1$	$5 - 3$
5	$6 - 1$	$10 - 4$	$7 - 6$	$10 - 5$
6	$7 - 1$	$10 - 3$	$8 - 1$	$9 - 3$
3	$6 - 2$	$7 - 4$	$5 - 2$	$9 - 4$



ACTIVITY 2



Frame subtraction problems from the numbers .

Example

5	1
3	2
1	9

Kiruba frames the above problem and got the answer correctly.

How many problems can you make? Do it in your note book !

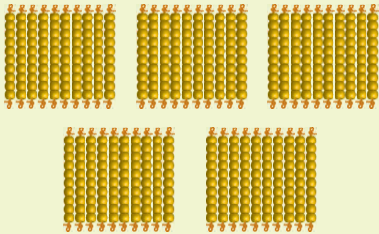
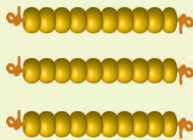



Subtraction of 3 digit numbers (without regrouping)

Subtract :

5 3 6

– 3 2 1

H	T	O
		
5	3	6

Step 1 : Subtract ones :

H	T	O
5	3	6
– 3	2	1
		5

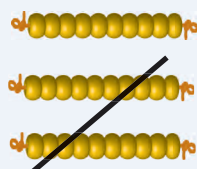


6 ones – 1 ones = 5 ones

Put 5 in ones place

Step 2 : Subtract tens :

H	T	O
5	3	6
– 3	2	1
	1	5

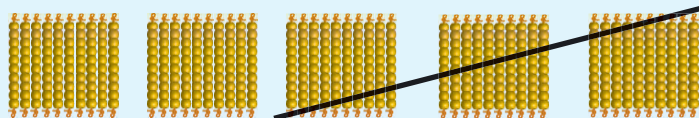


3 tens – 2 tens = 1 ten

Put 1 in tens place.

Step 3 : Subtract hundreds :

H	T	O
5	3	6
— 3	2	1
2	1	5



5 hundreds — 3 hundreds = 2 hundreds

Put 2 in hundreds place

5	3	6
— 3	2	1

2	1	5



Keep in mind :

In subtraction, first we subtract ones, then tens and hundreds in order.

Subtraction through spike abacus :

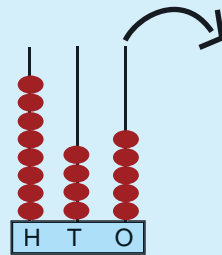
H	T	O
8	4	9
— 5	2	4



Step 1 :

Subtract ones:

H	T	O
8	4	9
— 5	2	4
		5

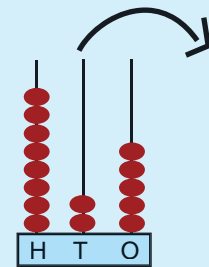


We take 4 beads in ones place. 5 beads remains in ones place.
 $9 \text{ ones} - 4 \text{ ones} = 5 \text{ ones}.$
 Write 5 in ones place.

Step 2 :

Subtract tens:

H	T	O
8	4	9
— 5	2	4
	2	5

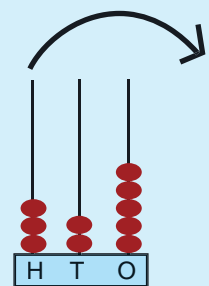


Take 2 beads in tens place. 2 beads remains in tens place.
 $4 \text{ tens} - 2 \text{ tens} = 2 \text{ tens}.$
 write 2 in tens place.

Step 3 :

Subtract hundreds:

H	T	O
8	4	9
— 5	2	4
3	2	5



Take 5 beads in hundreds place. 3 beads remains in hundreds place.
 $8 \text{ hundreds} - 5 \text{ hundreds} = 3 \text{ hundreds}.$
 Write 3 in hundreds place.



Now the abacus represents 325



Example

Subtract:

	H	T	O
	4	5	7
—	2	4	3

Step 1 :

Subtract ones

	H	T	O
	4	5	7
—	2	4	3
			4

Step 2 :

Subtract tens

	H	T	O
	4	5	7
—	2	4	3
		1	4

Step 3 :

Subtract hundreds

	H	T	O
	4	5	7
—	2	4	3
	2	1	4

4	5	7	
—	2	4	3

2	1	4	



Exercise 1

Subtract the following numbers:

$$\begin{array}{r} 257 \\ - 143 \\ \hline \end{array}$$

$$\begin{array}{r} 454 \\ - 232 \\ \hline \end{array}$$

$$\begin{array}{r} 591 \\ - 360 \\ \hline \end{array}$$

$$\begin{array}{r} 738 \\ - 502 \\ \hline \end{array}$$

$$\begin{array}{r} 869 \\ - 735 \\ \hline \end{array}$$

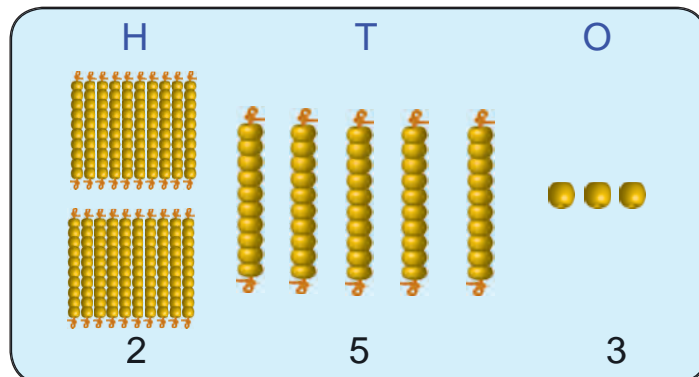
$$\begin{array}{r} 948 \\ - 437 \\ \hline \end{array}$$

Subtraction of three digit numbers (with regrouping)

Example

Subtract :

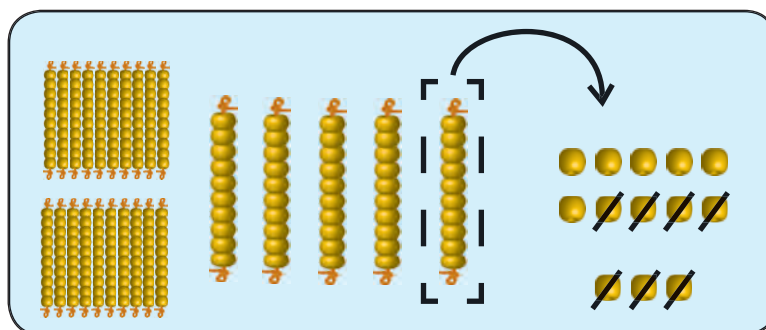
$$\begin{array}{r} 253 \\ - 127 \\ \hline \end{array}$$



Step 1 :

Subtract ones

H	T	O
	4	13
2	5	3
– 1	2	7
		6



We can not subtract 7 ones from 3 ones.
From 5 tens we take 1 ten and regroup it as 10 ones and add with 3 ones.

Subtract 13 ones – 7 ones = 6 ones

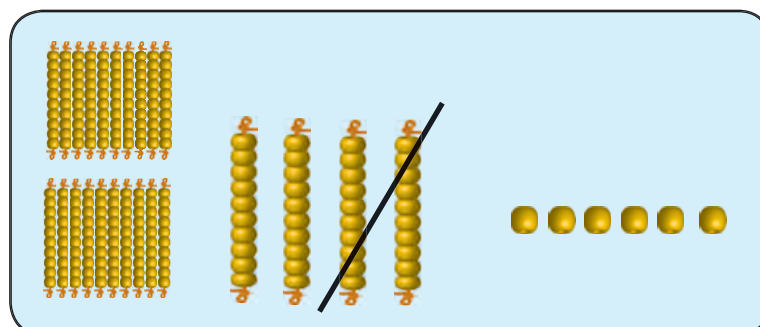
$$13 - 7 = 6$$

Write 6 in ones place.

Step 2 :

Subtract tens

H	T	O
	4	13
2	5	3
– 1	2	7
	2	6



Subtract 4 tens – 2 tens = 2 tens

$$4 - 2 = 2$$

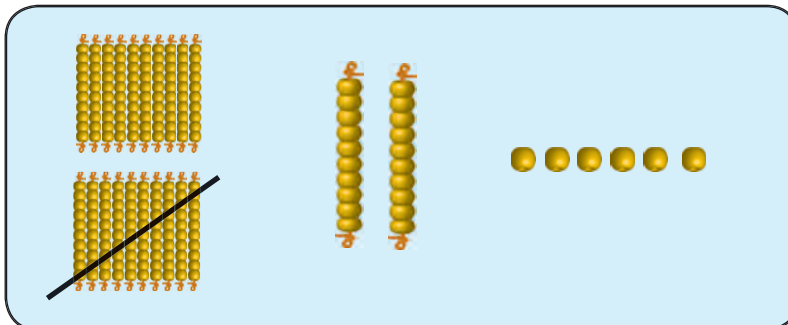
Write 2 in tens place



Step 3 :

Subtract hundreds

H	T	O
	4	13
2	5	3
— 1	2	7
1	2	6



Answer is 126

Subtract 2 hundreds — 1 hundred

$$2 - 1 = 1$$

Write 1 in hundreds place.

Example

Subtract

8	0	3
— 2	3	7

Step 1 :

Subtract ones.

7	10	
7	0	3
— 2	3	7

We can not subtract 7 from 3. So regroup tens. There is no tens. So regroup 1 hundred into 10 tens.

H	T	O
	9	
7	10	13
8	0	3
- 2	3	7
		6

Take 1 ten and regroup it as 10 ones and add with 3 ones, we get 13 ones.
subtract 13 ones - 7 ones = 6 ones.

$$13 - 7 = 6$$

Write 6 in ones place.

Step 2 :

Subtract tens

H	T	O
	9	
7	10	13
8	0	3
- 2	3	7
	6	6

Subtract 9 tens - 3 tens = 6 tens.

$$9 - 3 = 6$$

Write 6 in tens place.

Step 3 :

Subtract hundreds

H	T	O
	9	
7	10	13
8	0	3
- 2	3	7
5	6	6

Subtract 7 hundreds - 2 hundreds
= 5 hundreds

$$7 - 2 = 5$$

Write 5 in hundreds place

Answer is 566



Exercise 2

$$\begin{array}{r} 3 \quad 6 \quad 5 \\ - 2 \quad 2 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 1 \quad 8 \\ - 1 \quad 0 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \quad 4 \quad 7 \\ - \quad 2 \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 0 \quad 6 \\ - 4 \quad 5 \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 8 \quad 4 \\ - 1 \quad 9 \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \quad 8 \quad 2 \\ - 1 \quad 7 \quad 6 \\ \hline \end{array}$$



ACTIVITY 3

Take three numbers. (4, 3, 8)

Form the smallest three digit number. (348)

Interchange the digits. (843)

Subtract the smaller number from the greater number. (843 - 348)

Do it for various numbers !

Fun!

Take a two digit number. (98)

Interchange the digits. (89)

Subtract the smaller number from the greater number. (98 - 89 = 09)

Interchange digits in the answer. (90)

Add the interchanged number with the answer. (9 + 90 = 99)

Do it for other two digit numbers !
What do you get?

Statement problems

Exercise 3

There are 985 students in a school. 490 of them are girls. How many boys are there in the school?



Total number of students = **985**

No. of girls = **490**

No. of boys =

The population of a village is 992. The number of male is 547. Find the number of female in the village?



Total Population = **992**

No. of male = **547**

No. of female =

A factory made 842 toys in a day. 575 of them were sold to a dealer. How many toys were left unsold?



Total number of toys = **842**

No. of toys sold = **575**

No. of toys unsold =

The sum of two numbers is 700. If one number is 300. Find the other number?



Sum of two numbers = **700**

One number = **300**

Other number =



Date:.....

1) Subtract the following :

$$\begin{array}{r} 5 \quad 6 \quad 8 \\ - 3 \quad 4 \quad 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 3 \quad 2 \\ - 4 \quad 1 \quad 0 \\ \hline \end{array}$$

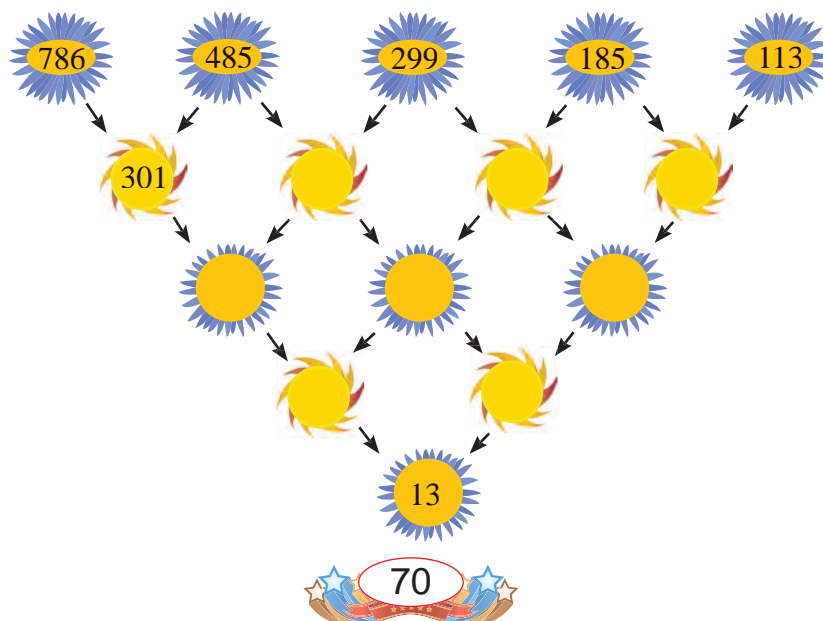
$$\begin{array}{r} 9 \quad 8 \quad 7 \\ - 8 \quad 6 \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \quad 8 \quad 2 \\ - 3 \quad 5 \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 4 \quad 2 \\ - 3 \quad 5 \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \quad 3 \quad 0 \\ - 1 \quad 2 \quad 4 \\ \hline \end{array}$$

2) Begin at the top by subtracting the two numbers that are connected with arrows. The first one is done for you. The last number is given to you as a check.



3) Express the following in numeral and subtract the second number from the first number.

- a) Four hundred sixty five , two hundred forty
- b) Three hundred thirteen, one hundred two
- c) Six hundred twenty four, five hundred twenty nine
- d) Eight hundred seventy two, five hundred thirteen
- e) Seven hundred sixty four, five hundred fifty seven

4) Answer the following:

a) There are 895 note books in a box. 500 note books were distributed. How many note books are left in the box?

b) 780 packets of sweets were bought to be distributed to the children in a school. 512 packets were distributed. How many packets were left?

c) In an India - Pakistan one day cricket match, the two teams scored a total of 700 runs. If Pakistan scored 208 runs, how many runs did India score?

Comments

Teacher's signature



Stories for addition and subtraction facts

Story 1

Balu collects firewood from a jungle. He wants to sell them in the market. He made 15 bundles of firewood. On the way to the market, he met an old lady. She is not well. She has no firewood to cook. She is sad. By seeing this, Balu took pity on her. So he gave one bundle to her.

He uses 10 firewood to make 1 bundle



2 Bundles have _____ fire woods.

Now, how many bundles are there?

He sold 7 bundles in the market .

How much bundles left with him?

Like Balu you have to help the people!

Story 2

Mrs. Rukmani is a social worker. She used to help the children to get their uniform dresses and note books. On visiting two different schools, she came to an idea of ordering dresses for 43 boys and 42 girls for one school and 117 boys and 108 girls in another school. While distributing the dresses to the children, she was informed that on the whole 16 Boys and 13 girls were absent on that day. So kindly help Mrs. Rukmani to calculate the total number of uniforms she will have to give.



Framing stories for problems :

Let us create a word problem to match these addition facts.



Example

$$22 + 12 = ?$$

There are 22 children in 2nd standard and 12 in 3rd standard .

How many children are there in all?

Frame a story for each given additional facts:

$$3 + 4 = ?$$

The gardener at the garden planted _____ rose saplings and _____ jasmine saplings.

How many saplings did he plant in all ?

In a school there were _____ boys and _____ girls. How _____ ?

$$144 + 142 = ?$$

$$253 + 317 = ?$$



Frame a story for each given subtraction facts :

$$100 - 12 = ?$$

Ramu, a fruit seller, has 100 mangoes. He gave 12 mangoes to the poor, free of cost. Then how many mangoes he would have sold for money?

Geetha has ____ rupees. He bought a pen for ____ rupees. How much money does she have?

$$50 - 15 = ?$$

$$130 - 125 = ?$$

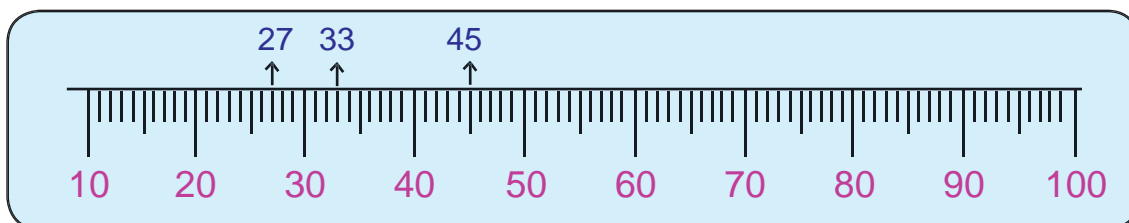


ACTIVITY 4

The teacher has to start saying stories for simple addition and subtraction facts. The children have to continue and finish the story by telling one by one. Finally the teacher has to sum up the story.

Estimation of numbers

Let us round off these numbers 27, 33 and 45 to the nearest ten.



We can see that 27 is between 20 and 30 but it is closer to 30 than 20. So, 27 round off to 30. 33 is between 30 and 40 but it is closer to 30 than 40. So 33 round off to 30. 45 is between 40 and 50 but it is exactly on middle point. So 45 round off to 50.

Example

1) Estimate the sum to the nearest ten and also find the actual sum.

Problems	Estimated Answer	Actual Answer
$\begin{array}{r} 12 \\ + 15 \end{array}$	$\begin{array}{r} 10 \\ + 20 \end{array}$	$\begin{array}{r} 12 \\ + 15 \end{array}$
Sum	30	27

2) Estimate the difference to the nearest ten and also find the actual difference.

Problems	Estimated Answer	Actual Answer
$\begin{array}{r} 18 \\ - 12 \end{array}$	$\begin{array}{r} 20 \\ - 10 \end{array}$	$\begin{array}{r} 18 \\ - 12 \end{array}$
Difference	10	6



Exercise 4

1) Round off to the nearest 10:

(a) 16

(b) 10

(c) 23

(d) 35

(e) 46

(f) 47

2) Estimate the sum to the nearest ten and also find the actual sum.

Problem	Estimated Answer	Actual Answer
13 +15	10 +20	13 +15

Problem	Estimated Answer	Actual Answer
27 +33		


3) Estimate the difference to the nearest ten and also find the actual difference.

Problem	Estimated Answer	Actual Answer
48 -41	50 -40	48 -41


Problem	Estimated Answer	Actual Answer
39 -21		




There were 12 pencils in a box. If 12 more had been put in, then there would be _____pencils in the box.




A shopkeeper has 25 eggs and he bought 10 more eggs. Now he has _____ eggs.




I am 7 years elder than my sister. My sister's age is 6. Then what is my age ?




Class III has 36 students. If 16 of the students are boys then how many girls are there?



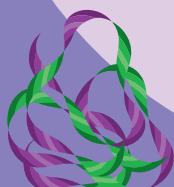
A factory made 30 bulbs on the first day. On the second day it did not make any bulbs. How many bulbs did they make altogether?




Gopu has 40 marbles and he gave 13 marbles to his sister. How many marbles does he have now ?




Meena has 12 green ribbons and 10 white ribbons. Then how many ribbons does she have?



In a city there are 28 primary schools, 20 higher secondary schools. How many schools are there in the city in all?



In the school cricket match, Anand scored 30 runs in the 1st innings and scored 20 runs in the 2nd innings. Find the total runs scored ?



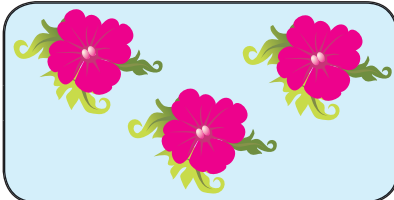
6

MULTIPLICATION

1. Identify the number of items in each group.



A group of hens



A group of flowers

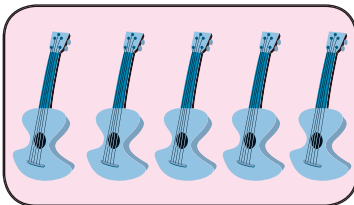


A group of books

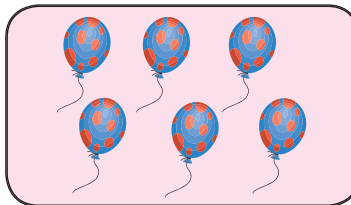
These are the groups with different number of items.

2. Identify the groups with equal number of items.

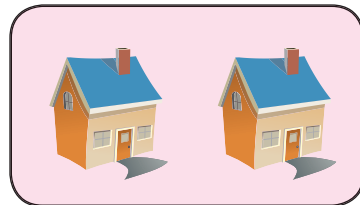
Group A



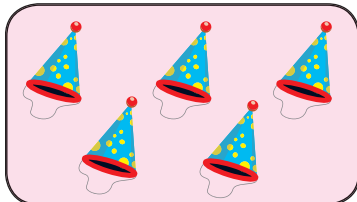
Group B



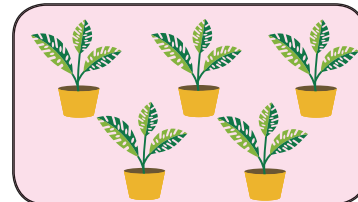
Group C



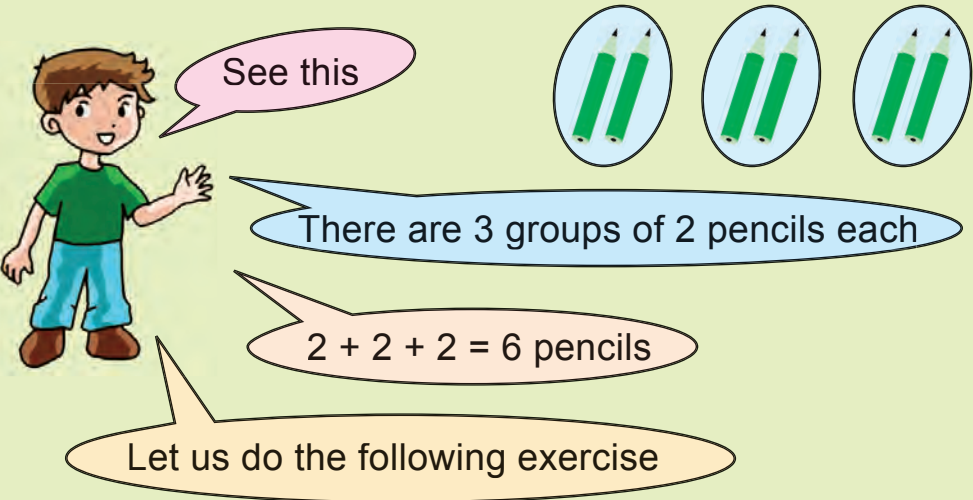
Group D



Group E



The groups , and have equal number of items.



See this

There are 3 groups of 2 pencils each


$2 + 2 + 2 = 6$ pencils

Let us do the following exercise

Exercise 1

Fill in the following


1.



$3 + 3 + 3 + 3 = \square$

groups of brushes each is brushes in all.

2.



$4 + 4 = \square$

groups of pots each is pots in all.

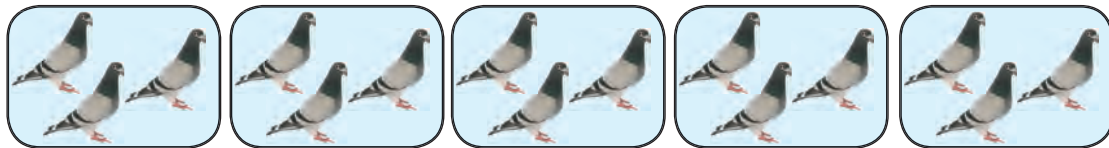
When each group has the same number of items, to find the total number of items, we can use another method called **Multiplication**.



Multiplication is the quicker way to add the same number. That is multiplication is nothing but repeated addition.

'X' is the symbol used for multiplication

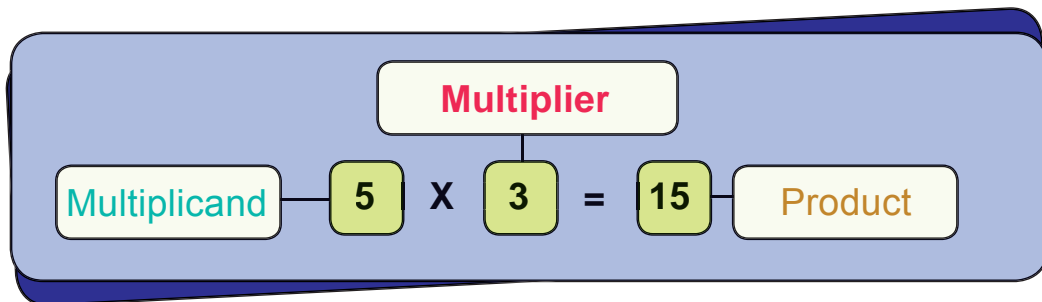
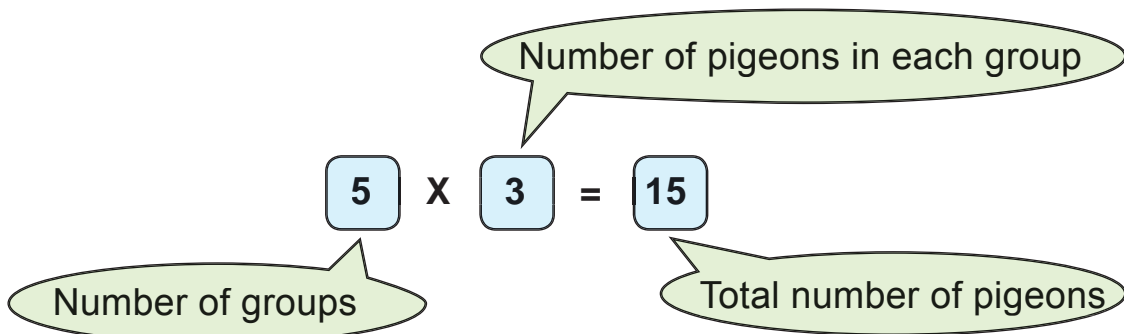
Multiplication fact



$$3 + 3 + 3 + 3 + 3 = 15$$

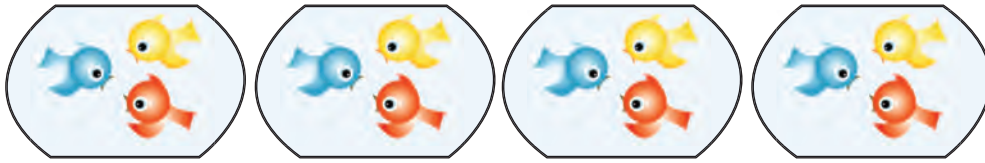
5 groups of 3 pigeons each is 15.

This can be written as $5 \times 3 = 15$



Note that we used multiplication instead of repeated addition

Example



Number of groups

=

4

Number of fish in each group

=

3

Number of fish in all

=

12

Addition fact

=

$3+3+3+3 = 12$

Multiplication fact

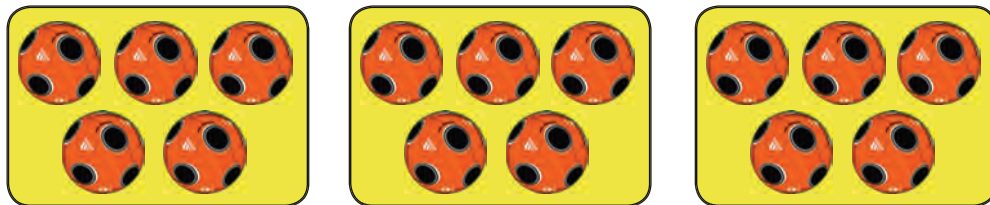
=

$4 \times 3 = 12$

Exercise 2

Fill up :

(1)



Number of groups

=

Number of balls in each group

=

Number of balls in all

=

Addition fact

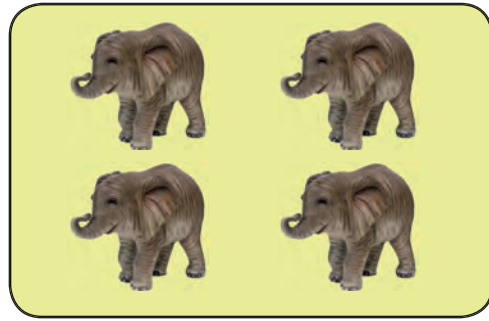
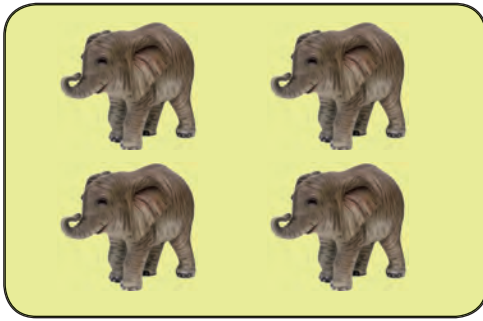
=

Multiplication fact

=



(2)



Number of groups =

Number of elephants in each group =

Number of elephants in all =

Addition fact =

Multiplication fact =

(3) Rewrite the following multiplication facts into repeated addition.

1) $6 \times 3 = 3 + 3 + 3 + 3 + 3 + 3$

2) $4 \times 5 = + + +$

3) $7 \times 4 = + + + + + + +$

4) $4 \times 2 = + + +$

5) $2 \times 10 = +$

(4) Rewrite the following into multiplication facts.

1) $6 + 6 + 6 + 6 + 6 = 5 \times 6$











2) $9 + 9 + 9 + 9 = 4 \times$

3) $8 + 8 + 8 =$

Construction of multiplication tables



Multiplication table 2

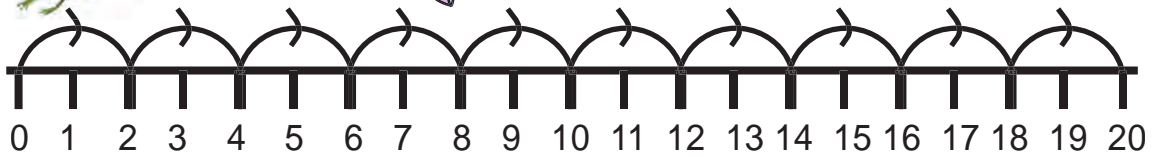
One box of 2 stars (picture)	Addition facts	Multiplication facts
	2	$1 \times 2 = 2$
	$2+2$	$2 \times 2 = 4$
	$2+2+2$	$3 \times 2 = 6$
	$2+2+2+2$	$4 \times 2 = 8$
	$2+2+2+2+2$	$5 \times 2 = 10$
	$2+2+2+2+2+2$	$6 \times 2 = 12$
	$2+2+2+2+2+2+2$	$7 \times 2 = 14$
	$2+2+2+2+2+2+2+2$	$8 \times 2 = 16$
	$2+2+2+2+2+2+2+2+2$	$9 \times 2 = 18$
	$2+2+2+2+2+2+2+2+2+2$	$10 \times 2 = 20$



Shall we say multiples of 2 ?



I like to jump by 2 !



Multiply by 2 :

X	1	2	3	4	5	6	7	8	9	10
2	2	4	6							

Exercise 3

Fill up :

a)	8	X	2	=	<input type="text"/>
b)	7	X	2	=	<input type="text"/>
c)	9	X	2	=	<input type="text"/>
d)	6	X	2	=	<input type="text"/>
e)	10	X	2	=	<input type="text"/>
f)	5	X	2	=	<input type="text"/>

Puzzle

If you add or multiply me by myself the result will be the same. Who am I?



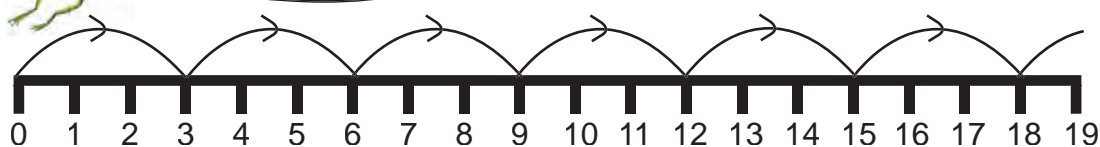
Multiplication table 3

One group of 3 persons (picture)	Addition facts	Multiplication facts
	3	$1 \times 3 = 3$
	$3+3$	$2 \times 3 = 6$
	$3+3+3$	$3 \times 3 = 9$
	$3+3+3+3$	$4 \times 3 = 12$
	$3+3+3+3+3$	$5 \times 3 = 15$
	$3+3+3+3+3+3$	$6 \times 3 = 18$
	$3+3+3+3+3+3+3$	$7 \times 3 = 21$
	$3+3+3+3+3+3+3+3$	$8 \times 3 = 24$
	$3+3+3+3+3+3+3+3+3$	$9 \times 3 = 27$
	$3+3+3+3+3+3+3+3+3+3$	$10 \times 3 = 30$

Shall we say multiples of 3?



I like to jump by 3!




Using the table practice it


X	1	2	3	4	5	6	7	8	9	10
3	3			12			21			




Exercise 4

1. Fill up :

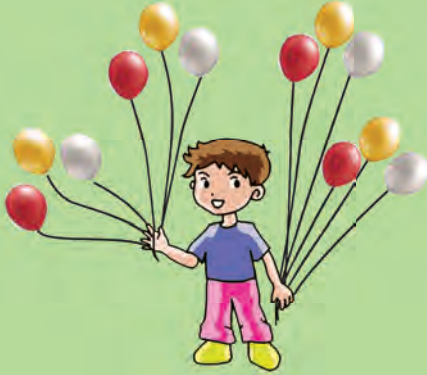






$3 \times 3 = \boxed{}$

2. Fill up :



$4 \times 3 = \boxed{}$

3. Complete the Table.

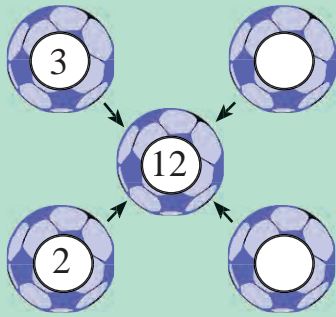
X	2	3
1		3
2		
3		
4	8	
5		
6		18
7		
8		
9		
10	20	

Puzzle !

1. X = 6
- X = 9
- X = 4

Find out the number in and

2.



Place the number in the boxes such that the product of the diagonal numbers should be 12.



Multiplication table 4

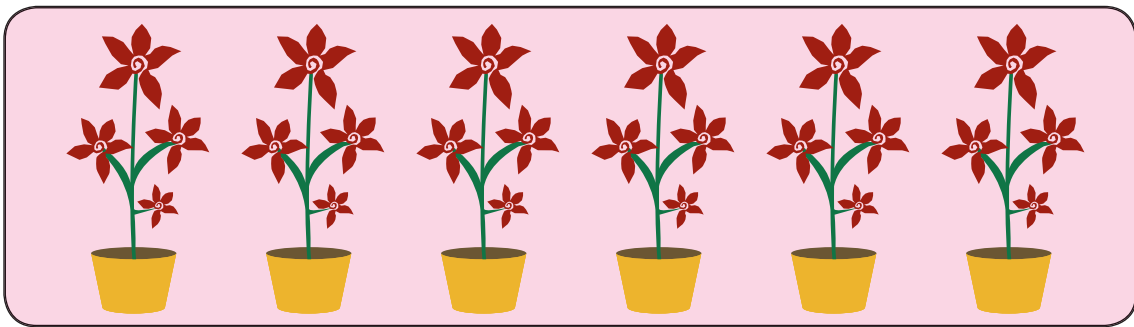
One chair of 4 legs (picture)	Addition facts	Multiplication facts
	4	$1 \times 4 = 4$
	$4+4$	$2 \times 4 = 8$
	$4+4+4$	$3 \times 4 = 12$
	$4+4+4+4$	$4 \times 4 = 16$
	$4+4+4+4+4$	$5 \times 4 = 20$
	$4+4+4+4+4+4$	$6 \times 4 = 24$
	$4+4+4+4+4+4+4$	$7 \times 4 = 28$
	$4+4+4+4+4+4+4+4$	$8 \times 4 = 32$
	$4+4+4+4+4+4+4+4+4$	$9 \times 4 = 36$
	$4+4+4+4+4+4+4+4+4+4$	$10 \times 4 = 40$



Using the table practice it

X	1	2	3	4	5	6	7	8	9	10
4		8			20					

Exercise 5



1. A flower pot contains 4 flowers. How many flowers are there in 6 such flower pots?

$$\boxed{} \times \boxed{} = \boxed{}$$

2. Fill up :

$$2 \times \boxed{} = \boxed{8}$$

$$8 \times 4 = \boxed{}$$

$$4 \times 4 = \boxed{}$$

$$\boxed{} \times 4 = \boxed{40}$$

$$\boxed{} \times 4 = \boxed{20}$$

$$7 \times \boxed{} = \boxed{28}$$

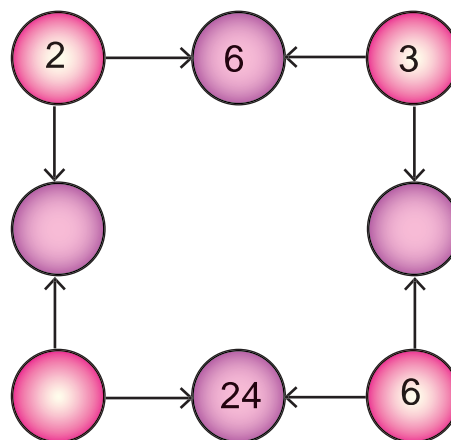
$$3 \times \boxed{} = \boxed{12}$$

$$9 \times 4 = \boxed{}$$

3. Complete the table.

X	2	3	4
1			
2	4		
3		9	
4			16
5			
6		18	
7			28
8			
9	18		
10			

4. Fill the circles.



Multiplication table **5**

One flower of 5 petals (picture)	Addition facts	Multiplication facts
	5	$1 \times 5 = 5$
	$5+5$	$2 \times 5 = 10$
	$5+5+5$	$3 \times 5 = 15$
	$5+5+5+5$	$4 \times 5 = 20$
	$5+5+5+5+5$	$5 \times 5 = 25$
	$5+5+5+5+5+5$	$6 \times 5 = 30$
	$5+5+5+5+5+5+5$	$7 \times 5 = 35$
	$5+5+5+5+5+5+5+5$	$8 \times 5 = 40$
	$5+5+5+5+5+5+5+5+5$	$9 \times 5 = 45$
	$5+5+5+5+5+5+5+5+5+5$	$10 \times 5 = 50$



Using the table practice it

X	1	2	3	4	5	6	7	8	9	10
5		10			25			40		

The unit's place in the product is either 0 or 5



Exercise 6

1. Complete the table.

X	2	3	4	5
1			4	
2				10
3	6			
4				
5		15		
6			24	
7	14			
8				40
9		27		
10				

2. Fill in the boxes.

3	X		=	15
	X	5	=	45
8	X		=	40
	X		=	25
	X	5	=	5
2	X	5	=	
10	X	5	=	

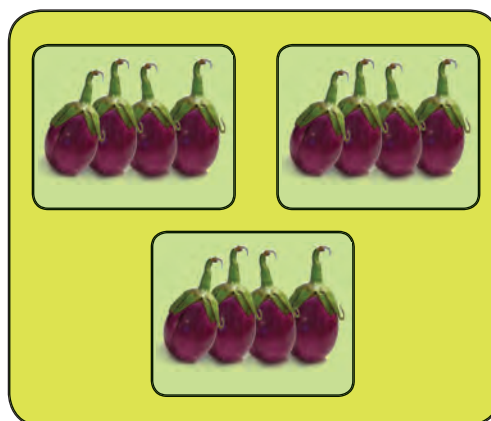
3. Keep the fruits in their appropriate plates.

Multiples of 3

Multiples of 5

Multiples of 2

See the magic!



4 groups of 3 brinjals

3 groups of 4 brinjals

$$4 \times 3 = 3 \times 4 = 12$$

4 groups of 3 items and 3 groups of 4 items contains the same 12 items




Multiplication table 10


One bundle of 10 sticks (picture)	Addition facts	Multiplication facts
	10	$1 \times 10 = 10$
	$10+10$	$2 \times 10 = 20$
	$10+10+10$	$3 \times 10 = 30$
	$10+10+10+10$	$4 \times 10 = 40$
	$10+10+10+10+10$	$5 \times 10 = 50$
	$10+10+10+10+10+10$	$6 \times 10 = 60$
	$10+10+10+10+10+10+10$	$7 \times 10 = 70$
	$10+10+10+10+10+10+10+10$	$8 \times 10 = 80$
	$10+10+10+10+10+10+10+10+10$	$9 \times 10 = 90$
	$10+10+10+10+10+10+10+10+10+10$	$10 \times 10 = 100$



Using the table practice it

X	1	2	3	4	5	6	7	8	9	10
10										






See the unit digits in the product

Oh! all the products have unit digit as zero

So we can say the numbers end with zero are multiples of 10



Exercise 7

1. Complete the multiplication table.

X	2	3	4	5	10
1					10
2		6			
3	6				
4			16		
5					
6				30	
7					
8					80
9	18				
10					

2. Complete the multiplication table.

X	2	3	4	5	10
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Multiplication with zero



Observe that there is no flower in any of the flower pots.

This can be written as

$$0 \text{ flowers in the 1st pot} + 0 \text{ flowers in the 2nd pot} + 0 \text{ flowers in the 3rd pot} = 0 \text{ flowers on the whole}$$

$$0 + 0 + 0 = 0$$

$$3 \times 0 = 0$$

That is, if we multiply any number with zero then the product is zero.

Note that, if we multiply zero with any number, then also the product is zero.

$$3 \times 0 = 0 \times 3 = 0$$



Multiplication facts in life situations

An elephant has 4 legs. How many legs will 5 elephants have?

Number of elephants = 5

Number of legs for an elephant = 4



Say the multiplication table 4 upto 5×4

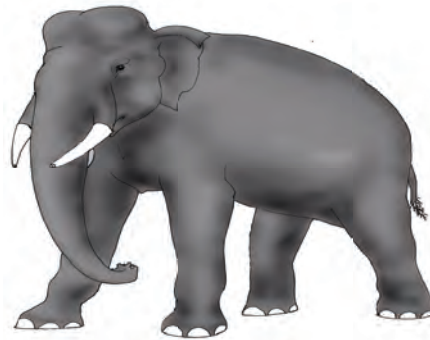
$$1 \times 4 = 4$$

$$2 \times 4 = 8$$

$$3 \times 4 = 12$$

$$4 \times 4 = 16$$

$$5 \times 4 = 20$$



Total number of legs for 5 elephants = $5 \times 4 = 20$

Example

The students of class III are arranged in 6 rows. In one row there are 5 students. Find the number of students in the class.

Number of rows = 6

Number of students in 1 row = 5

Total number of students in the class = 6×5

Say the multiplication table 5 upto 6×5

Total number of students = 30

$$1 \times 5 = 5$$

$$2 \times 5 = 10$$

$$3 \times 5 = 15$$

$$4 \times 5 = 20$$

$$5 \times 5 = 25$$

$$6 \times 5 = 30$$



Exercise 8

There are 3 pencils in a packet. How many pencils are there in 6 such packets?



Number of packets =

Number of pencils =

Total number of pencils =

In a class each student has 5 books. How many books 9 students have ?



Number of students =

Number of books =

Total number of books =

Ram gave sweets to 10 students. Each student got 4 sweets. Find out the number of sweets distributed by Ram ?

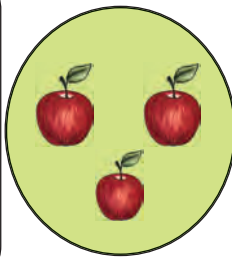


Number of students =

Number of sweets =

Total number of sweets distributed by Ram =

There are 3 apples in a box. How many apples are there in 8 boxes ?



Number of boxes =

Number of apples =

Total number of apples =

There are 5 colour pencils in one packet. Find the number of colour pencils in 9 such packets ?



Number of packets =

Number of colour pencils =

Total no. of colour pencils =

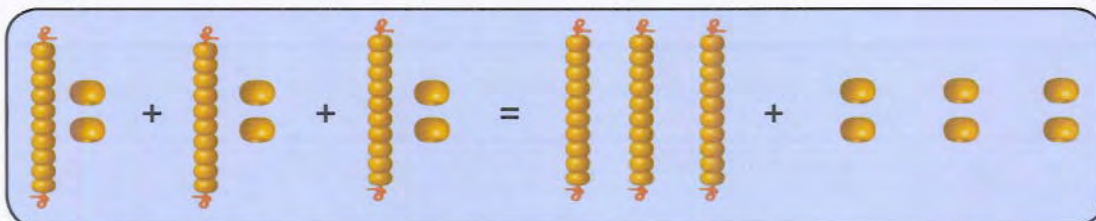


Multiplication of two digit number by one digit number

Multiply 12 by 3 :

$$12 \times 3 = ?$$

That is 3 times of 12 = ?



$$\begin{aligned}
 12 \times 3 &= 3 \times 1 \text{ ten} + 3 \times 2 \text{ ones} \\
 &= 3 \times 10 + 3 \times 2 \\
 &= 30 + 6 \\
 &= 36 \\
 12 \times 3 &= 36
 \end{aligned}$$

Using multiplication tables:

Step 1 :

T	O
1	2
	6

X 3

First multiply ones
 $3 \times 2 \text{ ones} = 6 \text{ ones}$

Step 2 :

T	O
1	2
3	6

3

Then multiply tens
 $3 \times 1 \text{ ten} = 3 \text{ tens}$

$$12 \times 3 = 36$$

Example

T	O
3	2
	4

$\times 2$

T	O
3	2
6	4

$\times 2$

$$32 \times 2 = 64$$

Exercise 9

(i) Find the product:

1

T	O
2	3

$\times 3$

T	O
2	3

$\times 3$

$$23 \times 3 = \bigcirc$$



2

T	O
4	3
<div></div>	

X

2

T	O
4	3
<div></div>	

X

2

43 X 2 =

3

T	O
4	0
<div></div>	

X

2

T	O
4	0
<div></div>	

X

2

40 X 2 =

(ii) Find the product using multiplication tables :

a

23 X 2
<div></div>

d

32 X 3
<div></div>

b

20 X 4
<div></div>

e

11 X 5
<div></div>

c

44 X 2
<div></div>

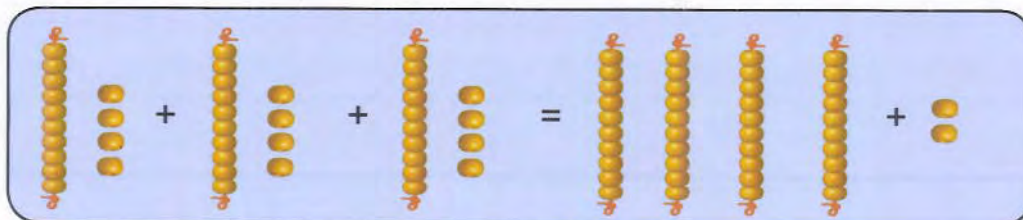
f

22 X 4
<div></div>

Multiply 14 by 3

$$14 \times 3 = ?$$

That is 3 times of 14 = ?



(Regroup 12 ones as 1 ten + 2 ones)

$$14 \times 3 = 3 \times 1 \text{ ten} + 3 \times 4 \text{ ones}$$

(Regroup 3 X 4 ones = 12 ones as 1 ten + 2 ones)

$$= 3 \text{ tens} + 1 \text{ ten} = 4 \text{ tens} + 2 \text{ ones}$$

$$= 40 + 2$$

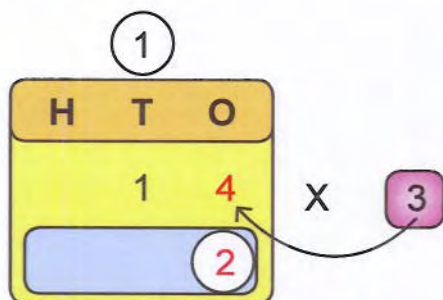
$$= 42$$

$$14 \times 3 = 42$$

Using multiplication tables we can multiply as follows:

Find the product of 14×3

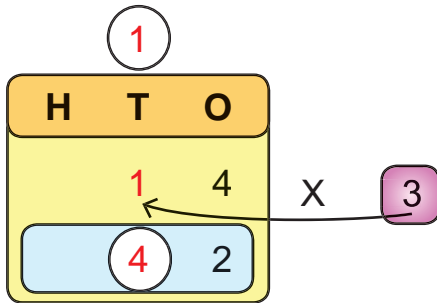
Step 1 :



- Multiply 4 ones by 3
 $3 \times 4 \text{ ones} = 12 \text{ ones}$.
- $12 \text{ ones} = 1 \text{ ten} + 2 \text{ ones}$.
- Write 2 ones under ones place.
- Carry over 1 to tens place.



Step 2 :



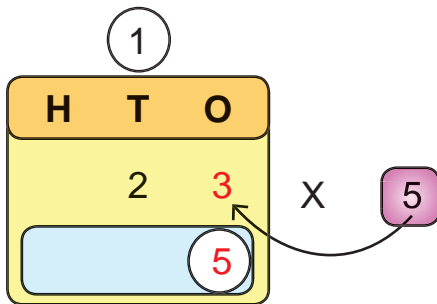
- Multiply 1 ten by 3
 $3 \times 1 \text{ ten} = 3 \text{ tens}$
- Add with 1 ten (regrouped)
 $3 \text{ tens} + 1 \text{ ten} = 4 \text{ tens}$
- Write 4 in tens place

$$14 \times 3 = 42$$

Example

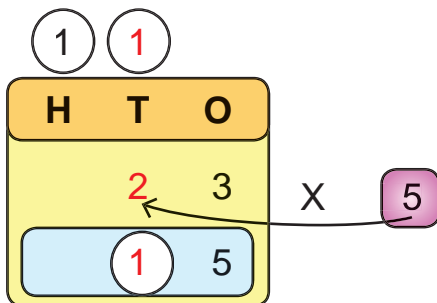
Find the product of 23×5

Step1 :



- Multiply 3 ones by 5
 $5 \times 3 \text{ ones} = 15 \text{ ones.}$
- $15 \text{ ones} = 1 \text{ ten} + 5 \text{ ones.}$
- Write 5 ones under ones place.
- Carry over 1 to tens place.

Step 2 :



- Multiply 2 tens by 5.
- Add with 1 ten (regrouped).
- $10 \text{ tens} + 1 \text{ ten} = 11 \text{ tens}$
 $11 \text{ tens} = 1 \text{ hundred} + 1 \text{ ten.}$
- Write 1 in tens place and 1 in hundreds place.

Step 3 :

H	T	O
	2	3
1	1	5

 \times 5 $23 \times 5 = 115$

Exercise 10

1) Find the product :

a 32×4

c 42×2

e 61×5

b 23×3

d 20×2

f 21×5

2) Find the product :

a 14×3

c 23×4

e 62×5

b 48×2

d 24×5

f 26×3



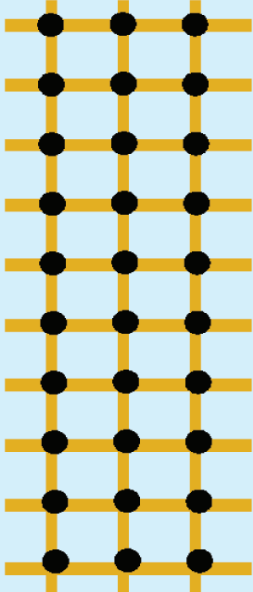
Project

1. Colour the pair of numbers adjacent to each other whose product is 12.

6	2	8	3	4
2	7	1	6	3
4	3	12	4	3
4	9	1	8	1
3	4	7	1	12

2. We can construct multiplication tables through sticks.

Let us construct the multiplication table 3

	$1 \times 3 = 3$
	$2 \times 3 = 6$
	$3 \times 3 = 9$
	$4 \times 3 = 12$
	$5 \times 3 = 15$
	$6 \times 3 = 18$
	$7 \times 3 = 21$
	$8 \times 3 = 24$
	$9 \times 3 = 27$
	$10 \times 3 = 30$

- ✂ Take 3 sticks and keep them vertically.
- ✂ Take one stick and keep it across as shown above.
- ✂ Count the number of points where they meet each other.
- ✂ There are three meeting points.
- ✂ $1 \text{ time } 3 = 3 \text{ or } 1 \times 3 = 3.$
- ✂ Take one more stick and keep it across as shown above.
- ✂ Count the total number of meeting points, it is 6.
- ✂ $2 \text{ times } 3 \text{ is } 6 \text{ or } 2 \times 3 = 6.$
- ✂ Continue this process to get 3 times, 4 times etc up to 10 times.

3. Multiplication tables through play way method.

Let us construct the multiplication table 4.

Step 1 :

Draw 4 circles in 10 rows.

Step 2 :

Fill the numbers 1 to 40 inside the circles.

Step 3 :

The numbers in the last column will be the product.



Construct other tables and enjoy

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40



Mental sums

Ram's age is 30 years . His father's age is twice as much. Find the age of his father.

Geetha scored 45 marks in an exam. In next exam she scored double of it. How much did she score in the next exam ?

Sanjeeve scored 48 runs in the first match. He scored double in the second match. How much did he score in the second match?

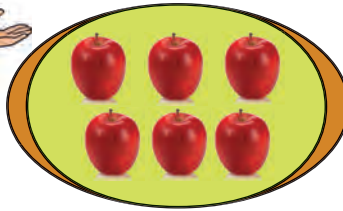
Seetha's weight is 16 kg. Her brother krishna weighs double. What is the weight of krishna?

Sheela bought a dozen of plantain.
Saro bought 4 less than double of it.
How many plantains did saro buy?

Ram has 6 apples. He wants to share them equally to 2 children.

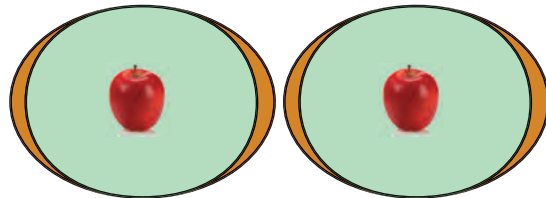


How to share equally?



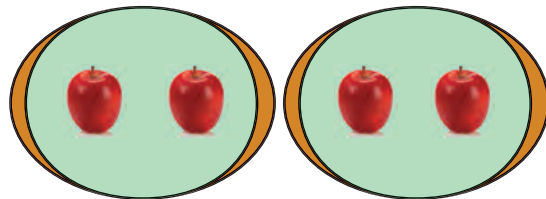
First give one to each

4 apples remain



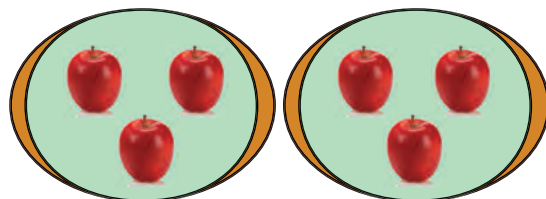
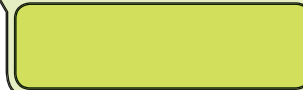
Next give one more to each

2 apples remain



Finally give one more to each

No apples remain



Each child got 3 apples

"Equal sharing" is known as "Division".



Thus Ram shared 6 apples equally between the 2 children with the help of his sister vidhya and finally each child got 3 apples.

Number of apples = 6

Number of persons = 2

Number of apples got by each = 3

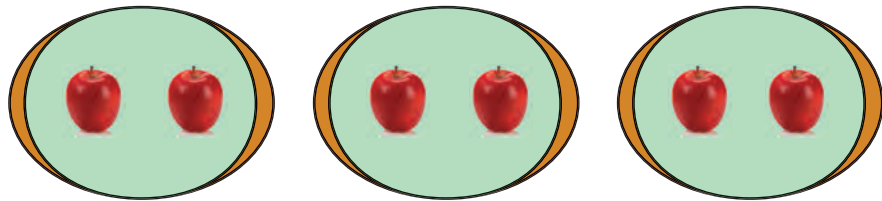
We write this as $6 \div 2 = 3$

This is read as 6 divided by 2 is equal to 3

$6 \div 2 = 3$ is called as "division fact"

\div symbol represents "division"

Let us see how vidhya shares 6 apples equally into the groups of 2 each.



She shared 6 apples equally into 3 groups so that each group has 2 apples.



In this case, what is the division fact ?

It is simple.

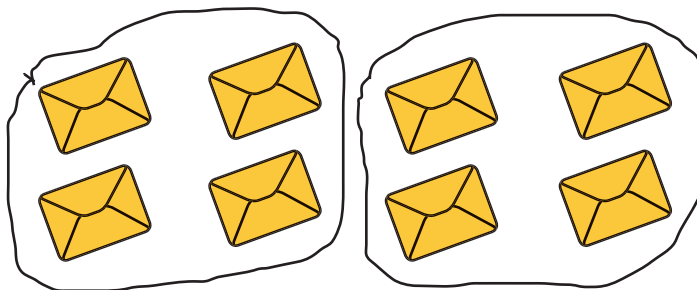
$$6 \div 2 = 3$$



Share the following equally by your drawing and complete the division facts.

Example

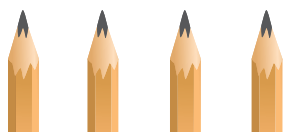
$$8 \div 4 = ?$$



The division fact is $8 \div 4 = 2$

Exercise 1

a. $4 \div 2 =$



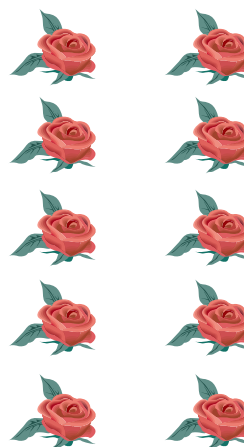
c. $9 \div 3 =$



b. $12 \div 4 =$



d. $10 \div 5 =$



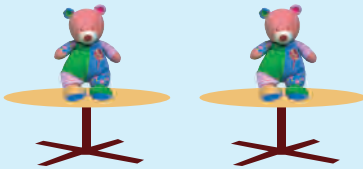


Division is repeated subtraction

Division is not only sharing but it is also repeated subtraction of the same number.

There are 6 toys. Let us divide these toys equally.

1st time, keep one toy on each table



Subtract 2 from 6

$$6 - 2 = 4$$

2nd time, keep again one toy on each table



Subtract 2 from 4

$$4 - 2 = 2$$

3rd time, keep again one toy on each table



Subtract 2 from 2

$$2 - 2 = 0$$

We have repeatedly subtracted 2 from 6, three times.

That is $6 \div 2 = 3$

Division is nothing but, "repeated subtraction"

Division through repeated subtraction :

Example

$$15 \div 3$$

Let us subtract 3 from 15 repeatedly

$$\begin{array}{r} 15 \\ - 3 \longrightarrow 1^{\text{st}} \text{ time} \\ \hline 12 \\ - 3 \longrightarrow 2^{\text{nd}} \text{ time} \\ \hline 9 \\ - 3 \longrightarrow 3^{\text{rd}} \text{ time} \\ \hline 6 \\ - 3 \longrightarrow 4^{\text{th}} \text{ time} \\ \hline 3 \\ - 3 \longrightarrow 5^{\text{th}} \text{ time} \\ \hline 0 \end{array}$$

Thus 3 is subtracted from 15, 5 times.

Therefore

$$15 \div 3 = 5$$

Exercise 2

Divide through repeated subtraction:

a. $15 \div 3$

$$15 \div 3 =$$

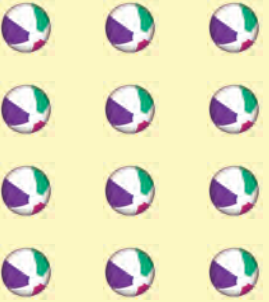
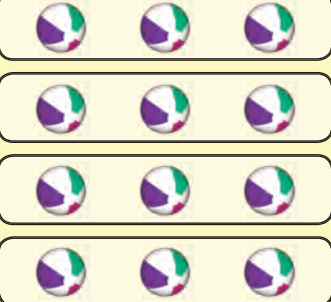
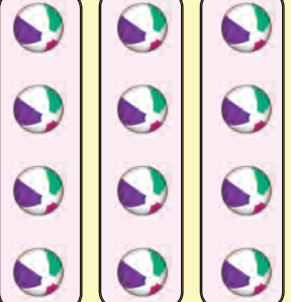
b. $12 \div 4$

$$12 \div 4 =$$

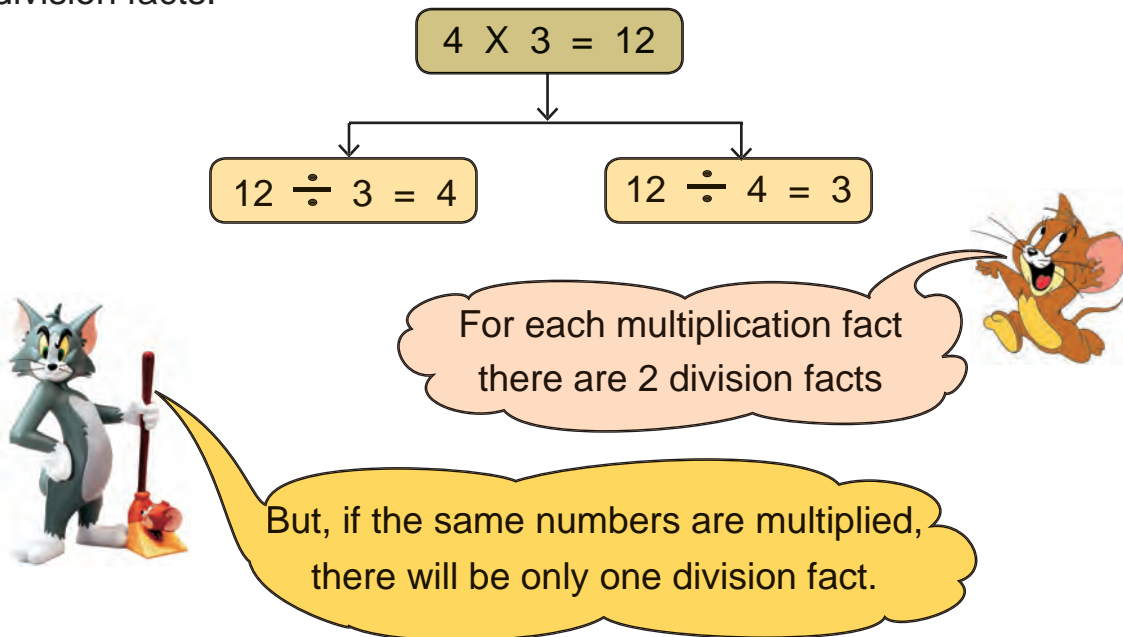


Relation between multiplication and division.

Some balls are arranged as follows:

Multiplication	Division - 1	Division - 2
		
Total number of balls $4 \times 3 = 12$	$12 \div 3 = 4$	$12 \div 4 = 3$

From the above table we see that the multiplication fact has two division facts.



Example

$3 \times 3 = 9$
Multiplication
fact



$9 \div 3 = 3$
Division fact

Note

If a number is multiplied with zero, it has only one division fact.

Example

$5 \times 0 = 0$
Multiplication
fact



$0 \div 5 = 0$
Division fact



Zero \div Any non zero number = Zero



Exercise 3

Do the following :

Multiplication fact	Division facts	
$3 \times 2 = 6$	$6 \div 3 = 2$	$6 \div 2 = 3$
$4 \times 3 = 12$		
$7 \times 2 = $ <input type="text"/>		
$6 \times 5 = $ <input type="text"/>		
$3 \times 3 = $ <input type="text"/>		
$5 \times 4 = $ <input type="text"/>		
$2 \times 0 = $ <input type="text"/>		
$4 \times 4 = $ <input type="text"/>		
$9 \times 0 = $ <input type="text"/>		
$8 \times 5 = $ <input type="text"/>		



Division table

Using the multiplication tables we can get a lot of division facts.

Construct the division facts from the multiplication table 2

Multiplication table ②	Division facts	
$1 \times 2 = 2$	$2 \div 2 = 1$	$2 \div 1 = 2$
$2 \times 2 = 4$	$4 \div 2 = 2$	$4 \div 2 = 2$
$3 \times 2 = 6$	$6 \div 2 = 3$	$6 \div 3 = 2$
$4 \times 2 = 8$	$8 \div 2 = 4$	$8 \div 4 = 2$
$5 \times 2 = 10$	$10 \div 2 = 5$	$10 \div 5 = 2$
$6 \times 2 = 12$	$12 \div 2 = 6$	$12 \div 6 = 2$
$7 \times 2 = 14$	$14 \div 2 = 7$	$14 \div 7 = 2$
$8 \times 2 = 16$	$16 \div 2 = 8$	$16 \div 8 = 2$
$9 \times 2 = 18$	$18 \div 2 = 9$	$18 \div 9 = 2$
$10 \times 2 = 20$	$20 \div 2 = 10$	$20 \div 10 = 2$



Project

Try to construct the division facts from other tables 3,4,5 and 10.

Simple Division Problems

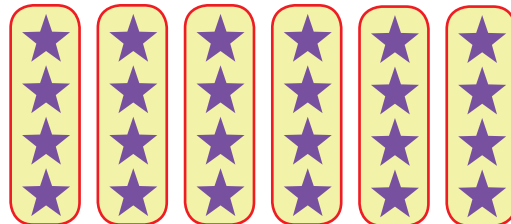
(a) Division with grouping:

Example

Divide 24 stars in to groups of 4 stars each

Make groups of 4 stars each

24 stars were divided into 6 groups of 4 stars each

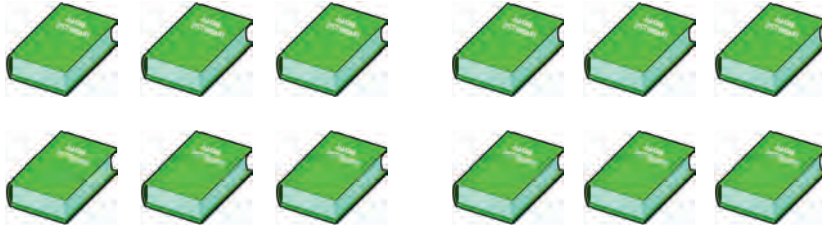


$$24 \div 4 = 6$$



Exercise 4

1) Divide 12 books into groups of 3 books each.



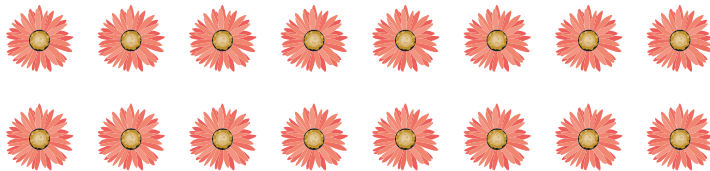
$$12 \div 3 = \boxed{}$$

2) Divide 15 candles into groups of 5 candles each.



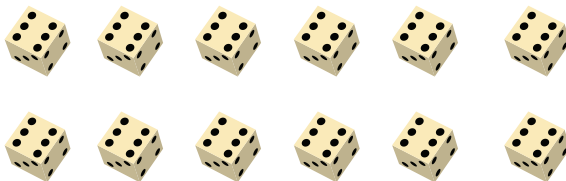
$$15 \div 5 = \boxed{}$$

3) Divide 16 flowers into groups of 2 flowers each.



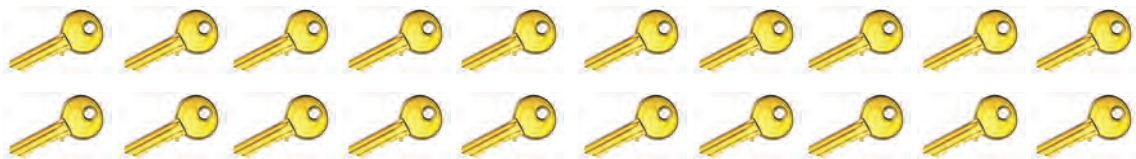
$$16 \div 2 = \boxed{}$$

4) Divide 12 dice into 4 equal groups.



$$12 \div 4 = \boxed{}$$

5) Divide 20 keys into 2 equal groups.



$$20 \div 2 = \boxed{}$$



Division using multiplication tables :

Example

1

Divide $15 \div 3$

$$15 \div 3 = 5$$

$$1 \times 3 = 3$$

$$2 \times 3 = 6$$

$$3 \times 3 = 9$$

$$4 \times 3 = 12$$

$$5 \times 3 = 15$$

Say the
multiplication table 3
till the product is 15.

Example

2

Divide $30 \div 5$

$$30 \div 5 = 6$$

$$1 \times 5 = 5$$

$$2 \times 5 = 10$$

$$3 \times 5 = 15$$

$$4 \times 5 = 20$$

$$5 \times 5 = 25$$

$$6 \times 5 = 30$$

Say the
multiplication table 5
till the product is 30.

Divide :

Exercise 5

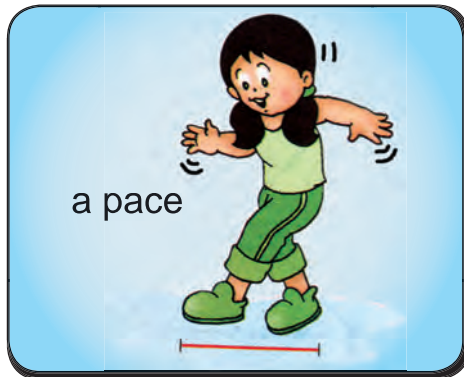
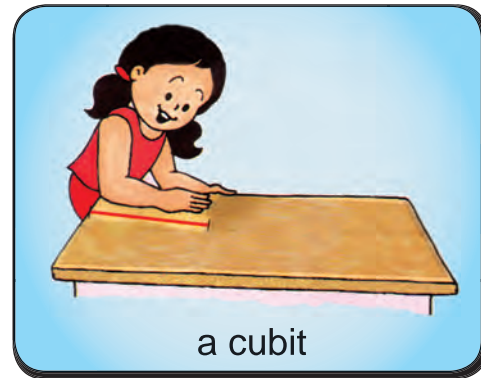
1	$15 \div 3 =$	
2	$18 \div 2 =$	
3	$20 \div 10 =$	

4	$28 \div 4 =$	
5	$10 \div 5 =$	
6	$16 \div 4 =$	

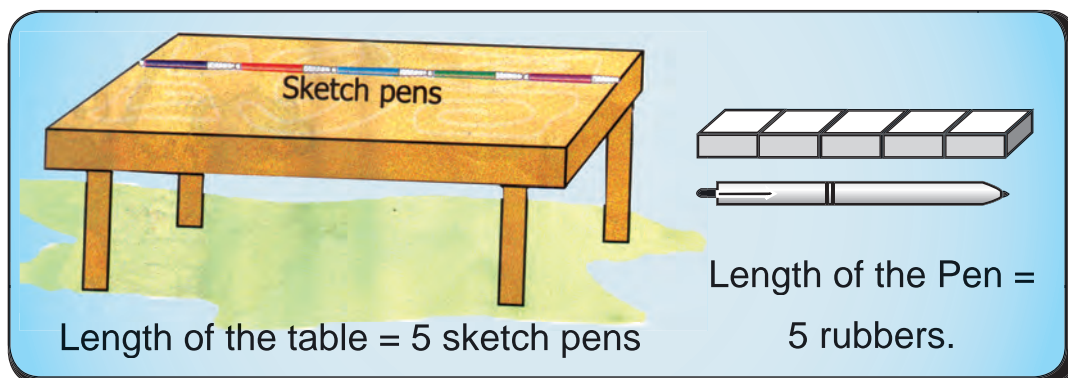
1	$35 \div 5 =$	
2	$27 \div 3 =$	
3	$25 \div 5 =$	

Recall

We measure the length of the objects to find out how long they are.
We can measure the length using non standard units such as



Similarly we can measure the length using objects.





ACTIVITY 1

1. Class table is cubit long
2. Length of your class room is pace long
3. Maths book is handspan long
4. Class room is foot span long

Need for a standard Unit



ACTIVITY 2

Take a rope. Measure it in hand span and fill the table given below.

S.No	Name of the students	Length of the rope (in hand span)
1		
2		
3		
4		

Look at the above measurements.

Are these measurements same?

No, they are not same. Because each hand span of the students are different.

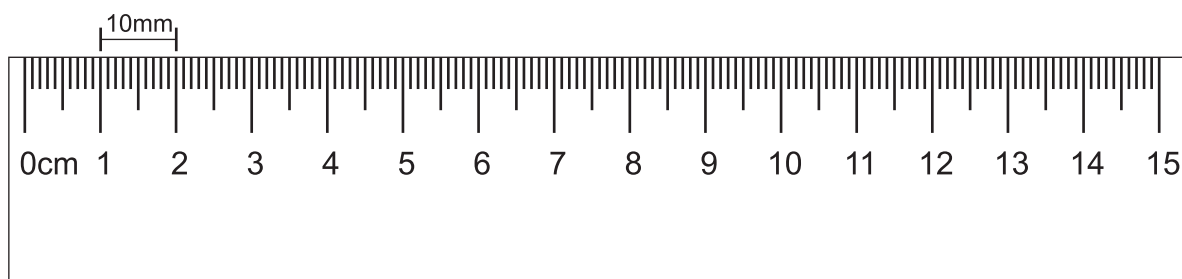
So, we need a standard unit to measure the length.

We use a metre or centimetre scale to measure length

Standard unit of length

Millimetre

Millimetre is the smallest unit of measuring length. It is used to measure smaller measurements. Look closely at your ruler. You will see very small lines between two numbers on the centimetre ruler as shown below. These are called millimetre. It is written as mm.



Centimetre

Look at the picture :



Remember
10 ones = 1 ten

The thickness of the book is 10mm.

This is otherwise written as 1cm.

Centimetre is the next immediate higher unit of measuring length to that of millimetre.

It is written as cm.

$$10 \text{ mm} = 1 \text{ cm}$$





Metre

Look at the picture :



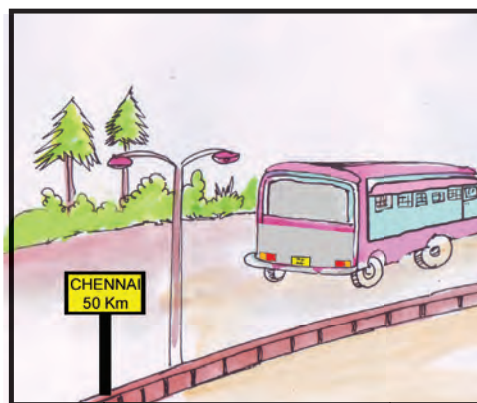
The shopkeeper uses the metre scale to measure clothes which consists of 100 cm.

Metre is the next applicable higher unit of measuring length to that of centimetres. It is written as m.

$$100 \text{ cm} = 1 \text{ m}$$

Kilometre

Look at the picture :



The bus covers the distance in kilometre.

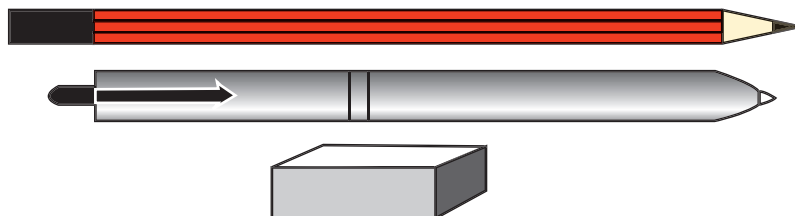
1 kilometre consists of 1000 m.

Kilometre is the bigger unit of length than metre.

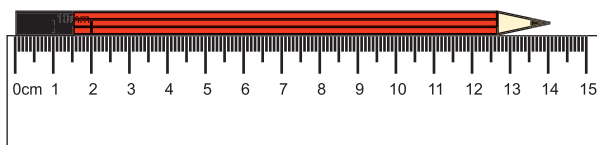
It is written as km. It is used to measure longer distance.

$$1000 \text{ m} = 1 \text{ km}$$

Measuring in Centimetres

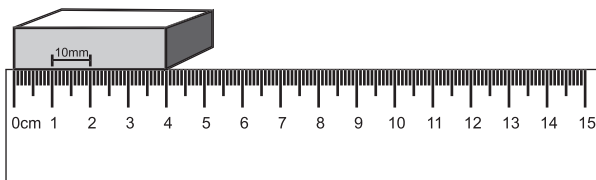
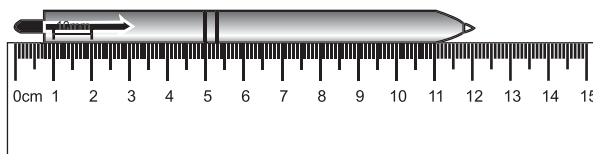


Place the zero mark on centimetre ruler against one end of the object. Read the number at the other end.



◀ Pencil is 14 cm long.

Pen is 12 cm long. ▶



◀ Eraser is 4 cm long.



ACTIVITY 3

Measure the length of your objects such as pencil box, duster, maths book, crayon in centimetre and table it.



ACTIVITY 4

Measure the heights of the students in your class in centimetre and tabulate them.

Sl.no	Name of the student	Height of the student(in cm)



ACTIVITY 5

Estimate the length of the following objects and verify it.

Sl.no	Name of the objects	Estimated length	Actual length
1.	Chalk piece		
2.	Duster		
3.	Pencil box		
4.	Table		
5.	Bench		
6.	Black board		



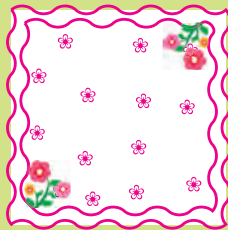
Project

Tabulate the estimated length and actual length of the materials available in your environment.

Recall



Chalk pieces



Hand Kerchief



Pencil Box



Duster



Book

Look at the pictures

List out the objects in descending order based on their weight that you feel.

1



2



3



4



5



What do you infer from the above activity?

Every object has its own weight!

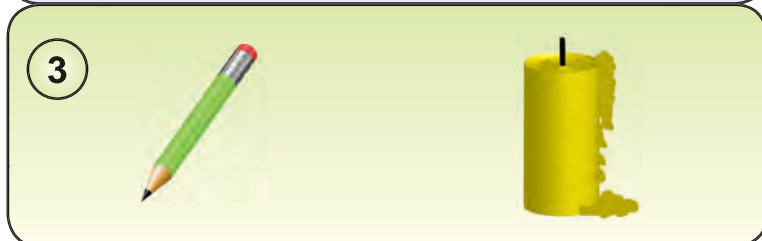
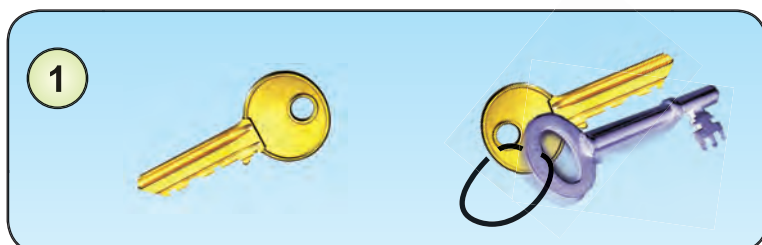


Can you guess which school bag is heavier?



Exercise 1

In each group circle the object which is heavier?



Try it!



Simple Balance

As shown in the picture using a thin stick, thread and plastic plates make simple balance.



Weighs objects using non-standard units

Now we measure the weight of the objects by non standard units using simple balance.

Example

1



Weight of one watermelon
= 3 coconuts

2



Weight of one box
= 4 pens



Exercise 2

From the following pictures find the weight of the objects.

1



Weight of one chick

= _____ eggs.

2



Weight of one Papaya

= _____ apples.

3



Weight of one Pineapple.

= _____ dolls.



Project

Weigh some objects by your locally available non standard units such as seeds, stones etc., using the simple balance and tabulate.



The amount of liquid that a container can hold is the capacity of the container.



Container A



Container B



Mug

Container A holds 25 mugs of water.

Container B holds 18 mugs of water.

Which container has larger capacity?

Answer : _____

Example

The pot is filled with 9 jugs of water.

So, the capacity of the pot is **9** jugs.



In non-standard units for measuring capacity, we use a small container to find out the capacity of big container.



Exercise 1

Find the measurement of the following container :

1

Two



of milk fill one



The capacity of the



is =

2



2

Eight



of water fill one



The capacity of the



is =



3

One



holds 15



of tea.

The capacity of the



is =



4

Five



of juice fill one.



The capacity of the



is =



5

Ten



of oil fill one .



The capacity of the



is =





ACTIVITY 1

- Divide the students into four groups.
- For each group give different size of buckets.
- Give the same size of jug to each group.
- Ask them to fill their buckets with water using the jug.



Compare the capacity of the buckets and discuss:

Name of the groups	Capacity of the buckets
A	
B	
C	
D	

Arrange the groups based on the capacity of the buckets:



THINK !



For filling a particular tank, Kala needs 40 pots of water whereas Sathya needs 50 pots of water. Find out the reason?



Date:.....

- 1) Which vessel helps quicker in filling a container?

The capacity of the container is 5 mugs (or)

The capacity of the container is 3 mugs.

Answer : _____

- 2) If a narrow container holds 8 bottles of petrol and a wider container holds 8 bottles of diesel then the capacity of narrow container is _____ the capacity of wider container
(greater than / equal to / less than)

- 3) A beaker holds 25 cups of milk. The capacity of the beaker is _____ cups.

- 4) A flask was filled with 7 cups of tea. Then the number of similar cups required to make the flask empty is _____.

- 5) The capacity of the watercan is 30 bottles. Then the number of bottles of same size that will fill another watercan of same size is _____.



A large empty rectangular box with rounded corners and four small red dots at the corners, intended for student comments.

Teacher's signature

Reading the time



Clock tell us time

Observe the face of the clock.

The face of the clock is marked with numerals (1 to 12).

The clock has two hands. One hand is longer and the other is shorter.

The long hand is the minute hand. It shows minutes.

The short hand is the hour hand. It shows hours.

When the minute hand is at 12, the hour hand tells the hour of the day.

The short hand of the clock is at 3.
The long hand of the clock is at 12.
So the time is 3 o'clock.
We write it as 3 : 00



After 1 hour



In this clock, the hour hand is at 4.
The minute hand is at 12.
So, the time is 4 o'clock.

























Note to the teachers

Practise the children with a model clock.









Exercise 1

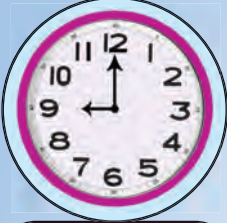


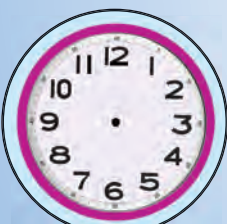


1) Tick the correct clock.

	After 1 hour			
	After 2 hours			
	After 3 hours			
	Before 2 hours			
	Before 1 hour			
	Before 3 hours			

2) Tell the time and write your answer in the box.

 10 o'clock	 	
 	 	

3) Draw the hands in the following clocks for the given time.

 9 o'clock	 7 o'clock	 12 o'clock
 2 o'clock	 4 o'clock	 8 o'clock



Reading the minute

Look at the movement of the hands in a working clock.

The minute hand is much faster than the hour hand.

The minute hand crosses every small marks in the clock.

There are 60 such small marks and each one is called a minute

The minute hand takes 5 minutes to go from one number to the next. The hour hand takes 60 minutes to go from one number to the next.

1 hour = 60 minutes

Example

Look at the pictures.



What do you observe?
The time is 9 o'clock.



The long hand is at 1.
So the time is 9 : 05



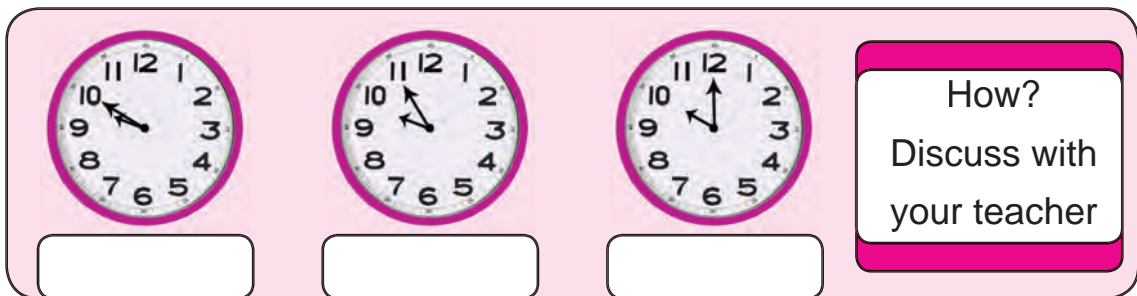
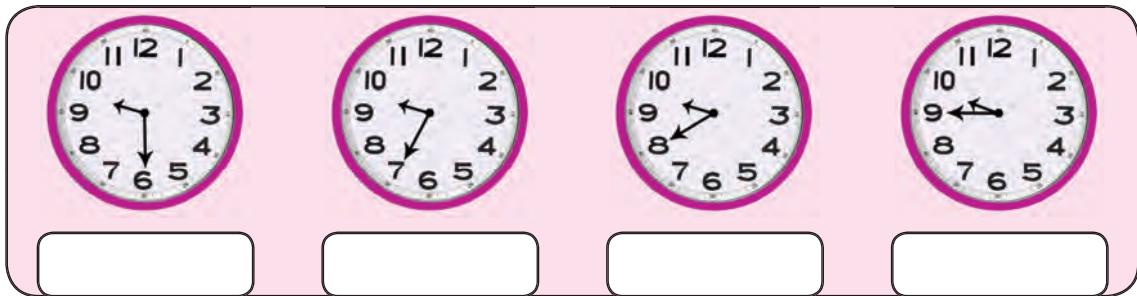
Exercise 2

1) Count in steps of five minutes and write the time :

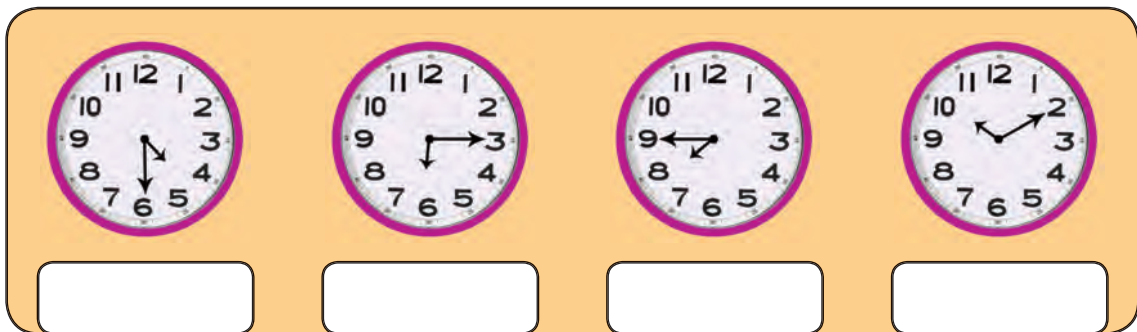


9 : 10

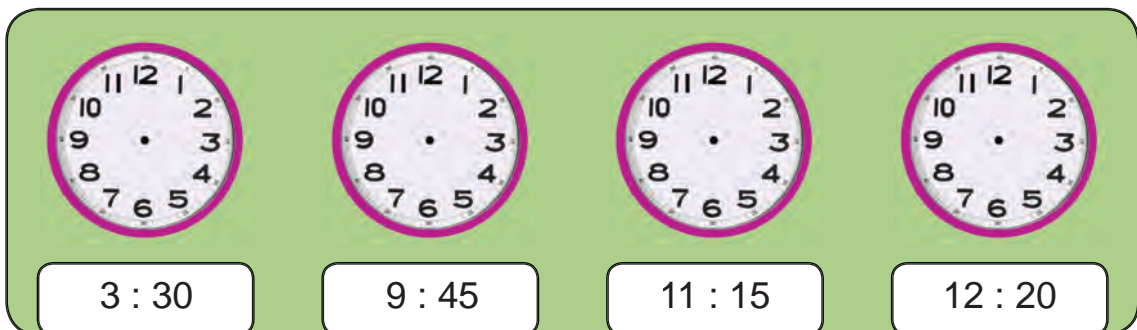




2) Tell the time in the clock and write your answer in the box :



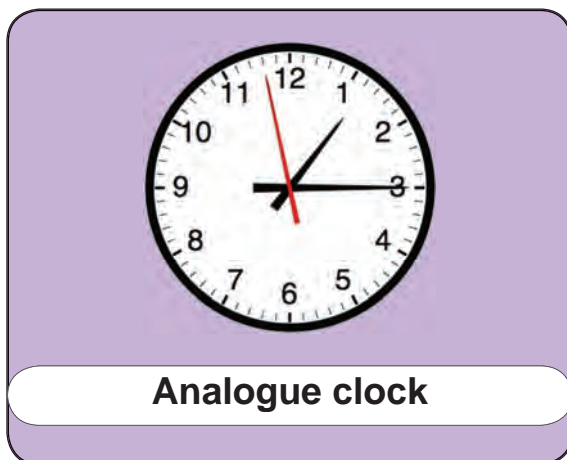
3) Draw the hands in the clocks to show the time as given below :





Digital clock

Observe the following.



Analogue clock



Digital clock

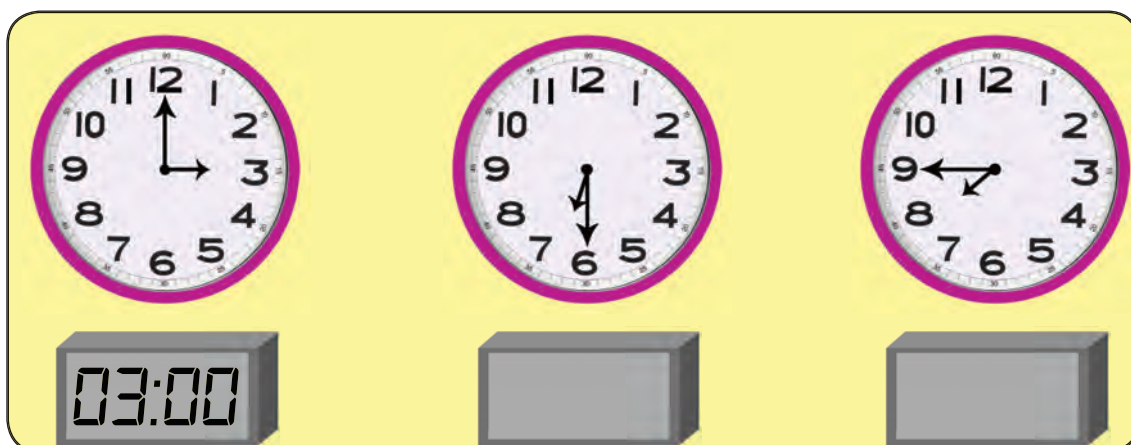
What do you observe?

In digital clock there is no minute hand and hour hand.

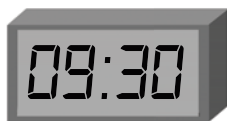


ACTIVITY 1

1) Mark the time in digital clock.



- 2) Draw the hands of these clocks to show the time given in the digital clocks.



Do you know ?

1 day = 24 hours

12 hours

12 hours

12 midnight to 12 noon

12 noon to 12 midnight

Time between
12 midnight and 12 noon
is denoted by a.m.

Time between
12 noon and 12 midnight
is denoted by p.m.

It is neither a.m. nor p.m. at 12 midnight
and at 12 noon.



Exercise 3

1) Write a.m. or p.m. suitably to the events given below.

1. Break fast at 7 : 45

7 : 45 a.m.

2. Lunch break at school at 12 : 15

3. Karate class in the school at 3 : 30

4. Morning prayer in the school at 8 : 30

5. School gets over at 4 : 00

6. Sunrises at 5 : 00

7. Sunsets at 6 : 00

8. Night 11 : 35

9. Night 2 : 30

10. Afternoon 1 : 30

2) Write the time with a.m. or p.m. for your daily activities.

Wake up at

:

Brushing the teeth at

:

Breakfast at

:

Going to school at

:

Lunch break at

:

Playing at

:

Watching TV at

:

Dinner at

:

Doing home work at

:

Retiring to bed at

:



Project

Collect the pictures of different types of
clocks and watches.



Calendar

Recall

1 Week = 7 Days

1 Month = 30 Days

1 Year = 365 Days

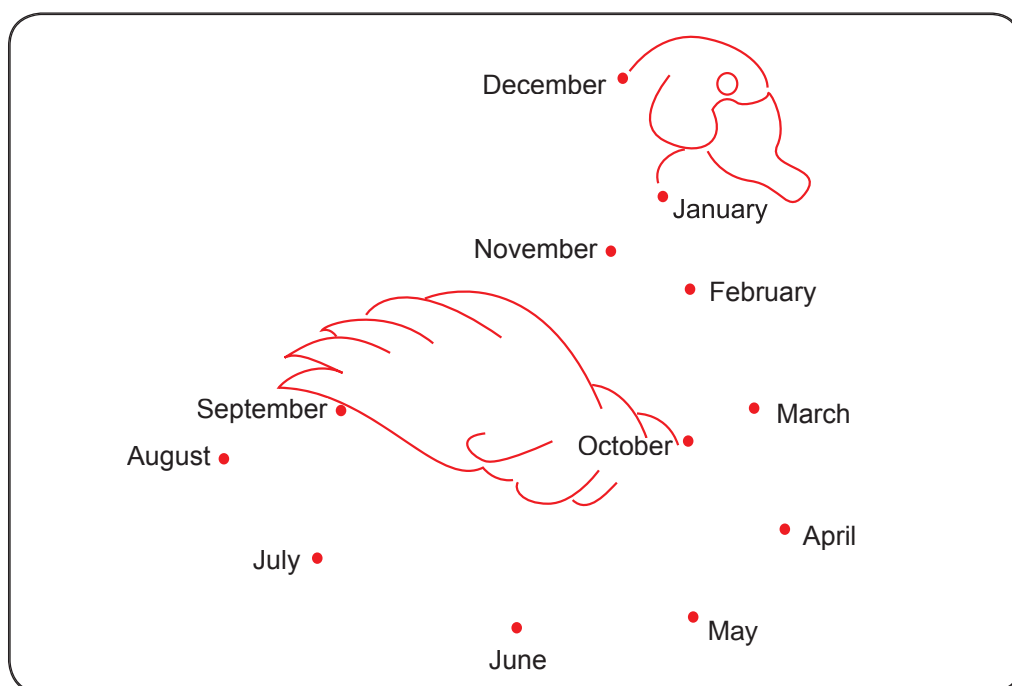
I know !
1 year = 12 months



I. Fill in the blanks:

- 1) A year has days.
- 2) In a week there are days.
- 3) is the first day of the week.
- 4) Twelve months are year.
- 5) First month of the year is

II. Join the dots in the order of the months and colour the picture.

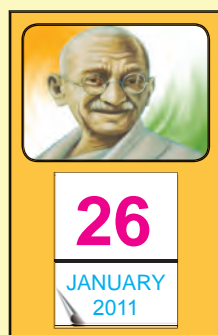


Reading the calendar

A calendar shows the days, weeks and months of a particular year. The days from **1st January to 31st December** of a year is called a **calendar year**.

There are two types of calendar.

Daily calendar



Monthly calendar

March 2011						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		





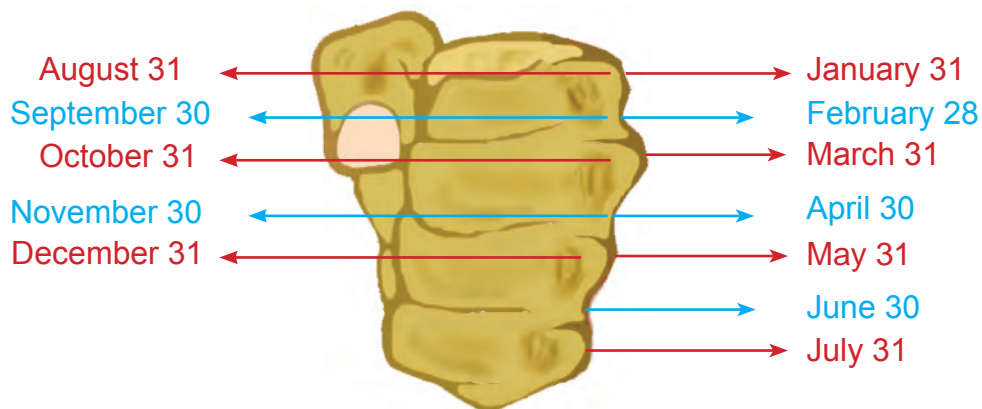
ACTIVITY 2

Read the calendar and fill in the blanks.

1. months have 31 days.
2. months have 30 days.
3. November has days.
4. There are weeks in the month of February.
5. is the last month of the year.
6. is the sixth month of the year.
7. In the month of you get your summer holidays.
8. The month of August has days.
9. comes between June and August
10. The month which starts with the letter F is

Picture of hand. (The Knuckle rick)

It is an easy way to remember the days in every month.





ACTIVITY 3

See the picture and fill in the boxes

- | | | | |
|-------------|---------|--------------|--|
| 1. January | 31 days | 7. July | |
| 2. February | | 8. August | |
| 3. March | | 9. September | |
| 4. April | | 10. October | |
| 5. May | | 11. November | |
| 6. June | | 12. December | |

Leap year :

February 2011						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

February 2012						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

February 2011 has 28 days,
February 2012 has 29 days.
why?

Because 2012 is the leap year.
A leap year comes once in four
years. In a leap year, February
has 29 days.



ACTIVITY 4

January 2011						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Look at the above calendar and fill in the boxes:

- Number of days in January 2011 is
- The number of sundays
- The number of holidays
- January 14th is on
- Republic day is on
- On which day does the year begin



ACTIVITY 5

Look at the calendar 2011 and fill in the boxes.

- Teacher's day is on
- Independence day is on

Date & Month	Day

3. Republic day is on

--	--

4. Gandhi Jayanthi is on

--	--


5. Children's day is on

--	--


6. Education development
day is on

--	--

Reading the date



When is Gandhiji's Birthday?



2nd october 1869.

Date of birth is written as :

Date	Month	Year
02	10	1869

Chronological order

Recording of events in the order of happenings is called the "chronological order"

Look at the date of birth for the following leaders from a calendar and tabulate them in the chronological order.

Kamarajar, Gandhiji, Arignar Anna, Dr. Ambedkar,
Jawaharlal Nehru



Date:.....

1. In a year there are months.
2. In a leap year February has days.
3. 2011 is not a year.
4. The shorter hand in a clock is hand.
5. Write the time.
6. Draw the hands.



12 : 15

7. Write a.m. or p.m.

Sachin plays cricket in the evening at 4.00

Sun rises at 5.30 in the morning.

8. Write your date of birth:

DD	MM	YYYY
<input type="text"/>	<input type="text"/>	<input type="text"/>

9. Leap year comes once in years.

Comments

Teacher's signature

Money is a medium of exchange. We use money for buying goods. In India, the unit of money is rupee.



We express the Indian money in terms of rupees and paise.

We use 'p' to write paise, 'Re' to write rupee and 'Rs' to write rupees. Also we use a dot (•) to separate rupees and paise.

Example

We express rupees sixty and fifty paise in figure as Rs. 60.50

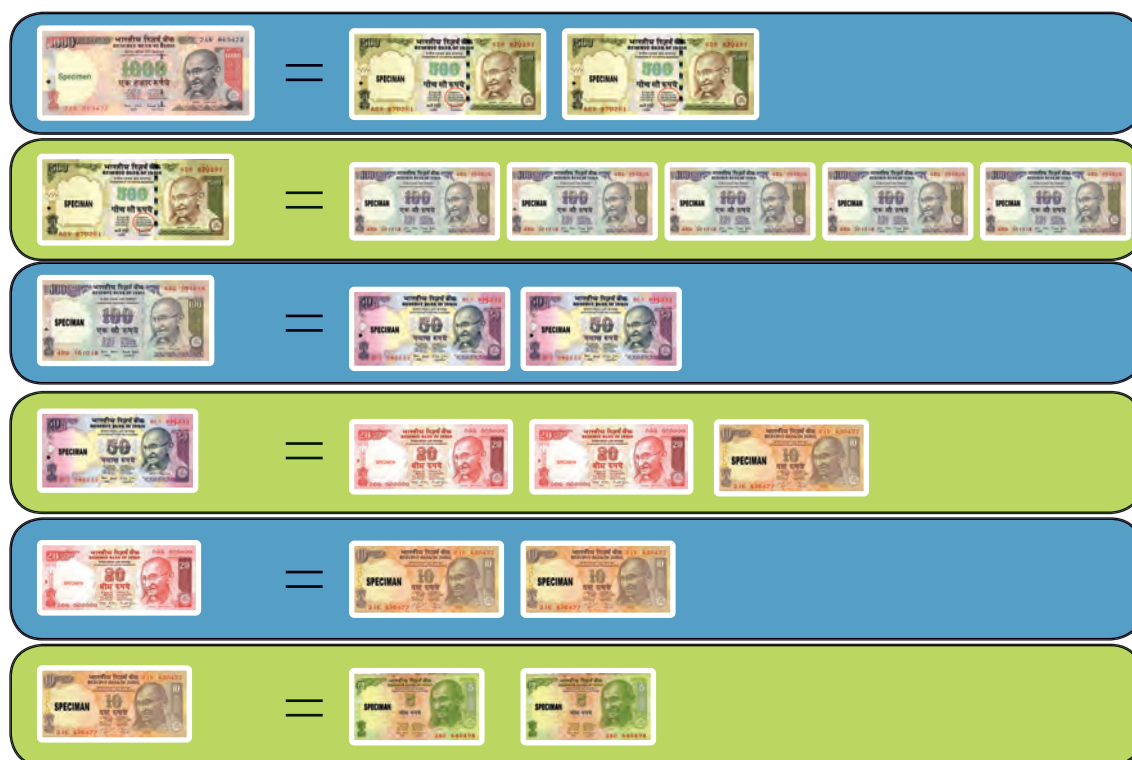
Our Indian government has introduced the symbol for our money as ₹ . So Rs. 60.50 is written as ₹ 60.50

Our Indian money





Denomination of rupees :



Denomination of coins :



Relationship between rupee and paise

100 paise = 1 rupee



We can make one rupee by using different coins



Note to the teachers

Tell the fact that,

- ◆ Coins of 1 paise, 2 paise, 5 paise, 10 paise, 20 paise are not in circulation.
- ◆ Notes of Re 1 and Rs. 2 are not in circulation

Exercise 1

1. Match the following :

₹ 250	  
₹ 650	 
₹ 1000	  



Do you know how we read & write rupees and paise?



Here we have 20 rupees and 50 paise.
We read it as rupees 20 and 50 paise.
We write this as Rs. 20.50 or ₹ 20.50



2. Fill in the boxes :

	₹ 50. 25

3. Look at the picture :



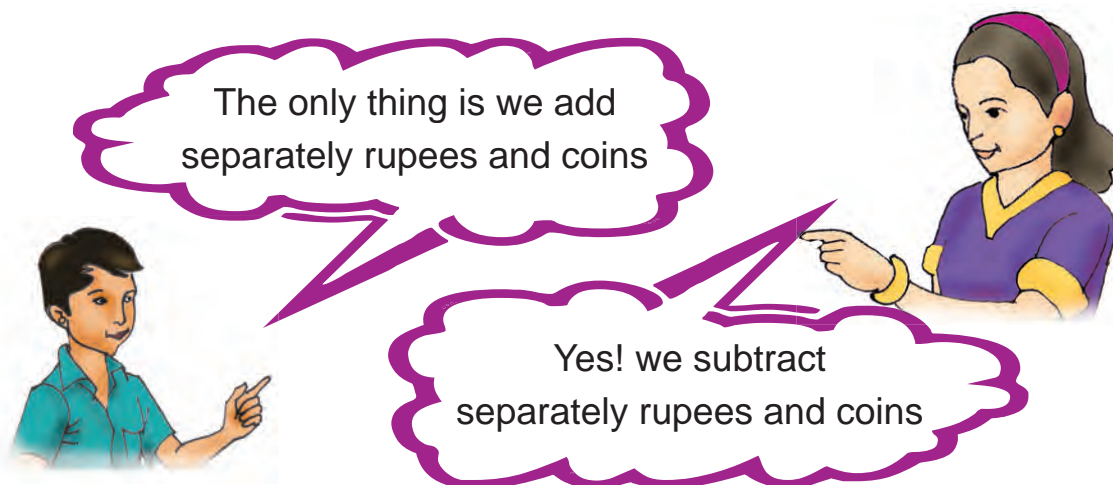
Tick the correct denomination of the prices of the things :

Item	Price
Ball	<input checked="" type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input checked="" type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90
Book	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90
Pencil box	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input checked="" type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90
Bag	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input checked="" type="checkbox"/> ₹320 <input type="checkbox"/> ₹90
Shoe	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input checked="" type="checkbox"/> ₹700 <input type="checkbox"/> ₹90
Shirt	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90 <input type="checkbox"/> ₹600
Pant	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90 <input type="checkbox"/> ₹800
Torch	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input checked="" type="checkbox"/> ₹90 <input type="checkbox"/> ₹600
Teddy bear	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90 <input checked="" type="checkbox"/> ₹120
Bat	<input type="checkbox"/> ₹150 <input type="checkbox"/> ₹400 <input type="checkbox"/> ₹30 <input type="checkbox"/> ₹320 <input type="checkbox"/> ₹90 <input type="checkbox"/> ₹600 <input type="checkbox"/> ₹280



Addition and Subtraction in money

Addition and subtraction of money is done as in addition and subtraction of numbers.



Example

Add ₹ 60.50 and ₹ 70.00.

$$\begin{array}{r} \text{₹ } 60 . 50 \\ + \text{₹ } 70 . 00 \\ \hline \text{₹ } 130 . 50 \end{array}$$

Write rupees and paise in two columns.

Add paise and write the sum under paise.

Add rupees and write the sum under rupees.

Subtract rupees 20 from rupees 40 and 50 paise.

$$\begin{array}{r} \text{₹ } 40 . 50 \\ - \text{₹ } 20 . 00 \\ \hline \text{₹ } 20 . 50 \end{array}$$

Write rupees and paise in two columns.

Subtract paise and write the answer under paise.

Subtract rupees and write the answer under rupees.



Exercise 2

1) Addition

₹ 10 . 50	₹ 70 . 50	₹ 300 . 10
₹ 15 . 00	₹ 20 . 10	₹ 200 . 40
+	+	+

2) Subtraction

₹ 90 . 50	₹ 80 . 60	₹ 450 . 70
₹ 70 . 20	₹ 30 . 50	₹ 150 . 20
-	-	-

Example

1) Raja bought a bottle of jam for ₹ 40.50 and a loaf of bread for ₹ 20.25 . What was the total amount spent ?

Cost of jam bottle	=	₹ 40 . 50
Cost of a loaf of bread	= +	₹ 20 . 25
Total amount spent	=	<u>₹ 60 . 75</u>




2) Radha took ₹ 50.50 with her to the market. She bought some chocolates for ₹ 20.25. How much money does she have now ?

Total amount	=	₹ 50 . 50
Spent amount	= -	₹ 20 . 25
Remaining amount	=	<u>₹ 30 . 25</u>






Exercise 3




How much rupees I have to pay to buy these toys?



I have ₹ 500 now. How much rupees I have left after buying the bat and the ball?



How much money I have to pay to the shop keeper after getting the biscuits and chocolate?



I have ₹ 30.75. Will I have any balance after I bought a pen and an eraser ?



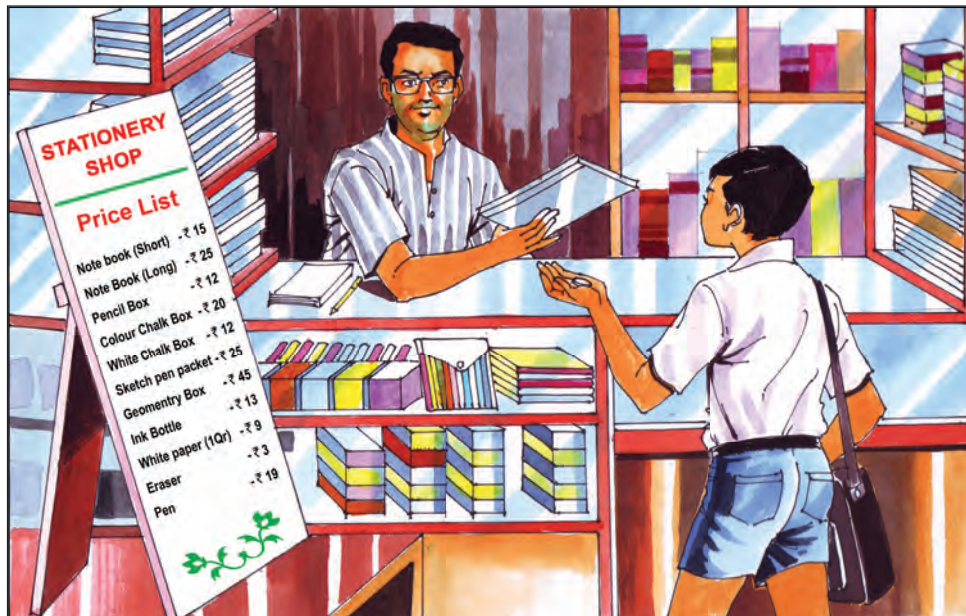


Project

Form a model shop in your class.

Bills and Rate charts

Bills help us to know the items of purchase, its prices, total amount paid, date of purchase, bill number and name of the shop.





Ram went to the book shop and bought the following items. The following bill is showing the rate of things and the total amount he paid.

Bill No : 767		Guru stationary shop			
Date : 08.09.2010		104. Main Road, Chennai.			
Sl. No.	Particulars	Quantity	Rate	Amount	
				Rs.	p.
1.	Ball point pen	10	5.00	50	00
2.	Note book	10	10.00	100	00
3.	Sketch pen set	6	15.00	90	00
4.	Crayons	2	20.00	40	00
5.	Marker	4	15.00	60	00
			Total	340	00

Using the above bill fill in the blanks:

1. Name of the shop _____
2. Bill number _____
3. Date of the bill _____
4. Total number of items purchased _____
5. Total amount of money paid _____
6. Rate of one marker pen _____
7. Rate of two crayons _____
8. Rate of one sketch pen set _____
9. Rate of one ball point pen _____
10. Rate of ten note books _____



Exercise 4

The following items are purchased from the supermarket. Find the total amount to be paid.

Sl. No.	Particulars	Quantity	Rate	Amount	
				Rs.	P.
1.	Jam bottle	2	30.00	60	00
2.	Honey bottle	3	15.00		
3.	Ghee packet	1	70.00		
4.	Cool drinks	2	40.00		
5.	Chocolate	4	6.00		
Total					



ACTIVITY 1

Prepare a rate chart for the above bills.

Sl. No.	Particulars	Quantity	Rate



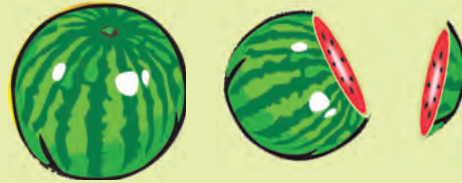
Project

Ask the students to collect different types of bills group wise and ask them to prepare album.

13

FRACTIONAL NUMBERS

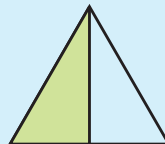
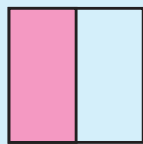
Here is a watermelon.
It has been cut into two parts.
Look at these two parts.
Are these two parts equal?
No, two parts of the watermelon are unequal.



Here is another watermelon.
It has been cut into two parts.
Observe these two parts.
Are these two parts equal?
Yes, two parts of the watermelon are equal.



One Half



What do you observe from the above figures.
In each figure, there are two equal parts.
One among them is shaded.
Each part is called one half.

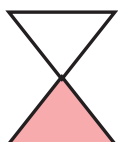
It is written as $\frac{1}{2}$ and read as 'one half'.



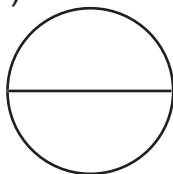
Exercise 1

Shade one half of each figure:

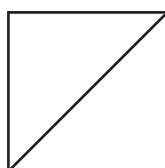
Example



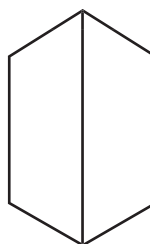
(a)



(b)



(c)

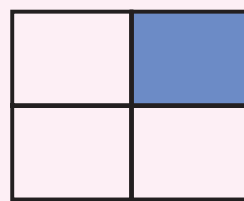
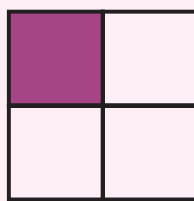
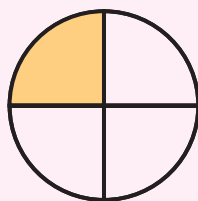


(d)



One quarter

What do you observe from the following figures?

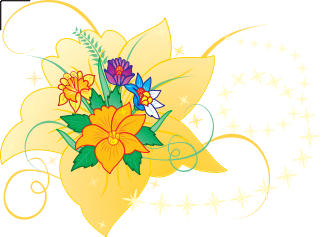


In each figure, there are four equal parts.

One among them is shaded.

Shaded portion is called one quarter.

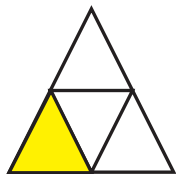
It is written as $\frac{1}{4}$ and read as 'one fourth'



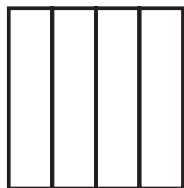
Exercise 2

Shade one fourth of each figure.

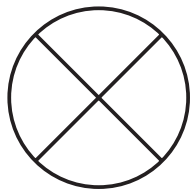
Example



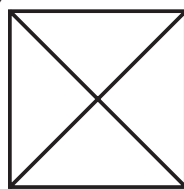
(a)



(b)



(c)

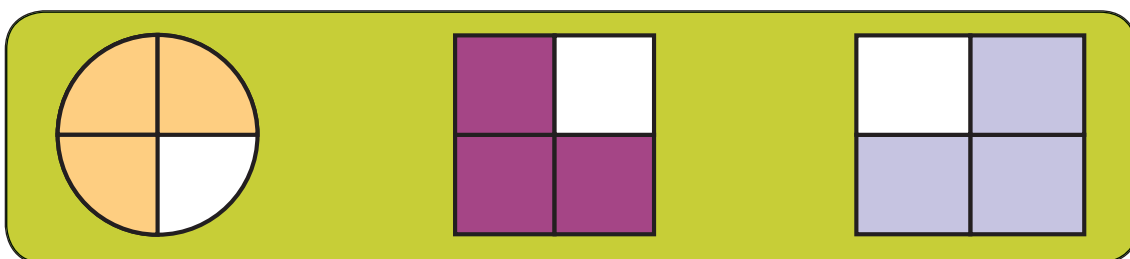


(d)



Three Fourth

What do you observe from the following figures?



In each figure, there are four equal parts.

Three among them is shaded.

So, the shaded portion represents three fourth.

It is written as $\frac{3}{4}$ and read as **three fourth**.

$\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ are fractional numbers.

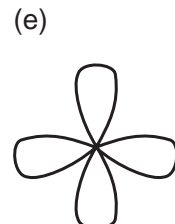
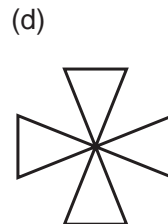
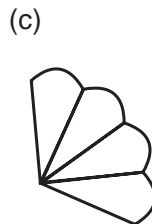
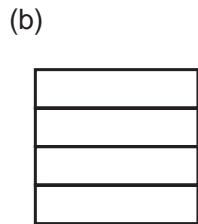
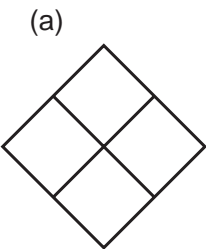
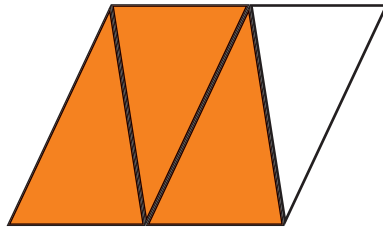


Exercise 3



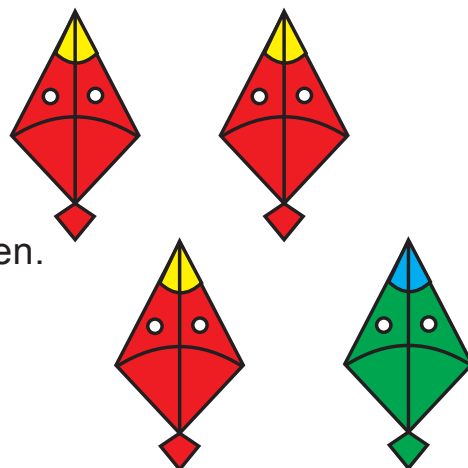
Shade three fourth of each figures.

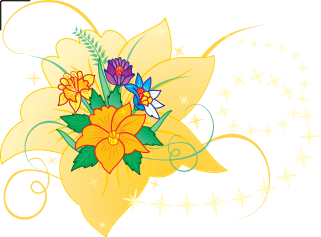
Example



Fraction in part of collection

Consider the following example.
Here there are four kites.
Three are red kites.
So three fourth of the kites are red.
Then one fourth of the kites are green.



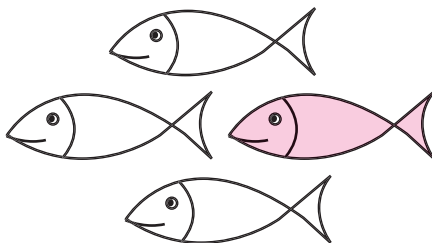


Exercise 4

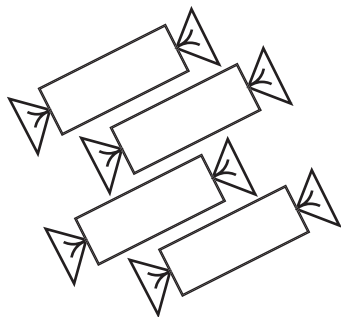
Shade each collection as given below:

Example

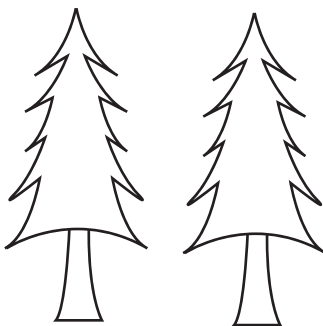
Shade one fourth



(a) Two fourth



(b) One half



(c) Three fourth



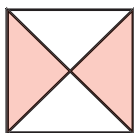
Exercise 5

(a) Write the fraction which represents the shaded portion.

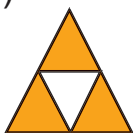
Example



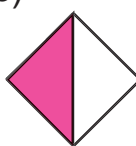
(a)



(b)



(c)

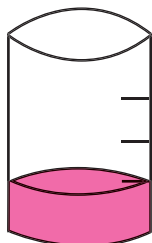


(d)



(b) Circle the correct fraction.

Example

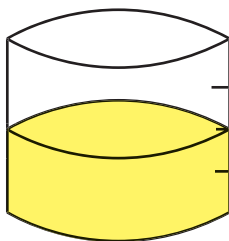


$\frac{2}{4}$

$\frac{1}{4}$

$\frac{3}{4}$

a)

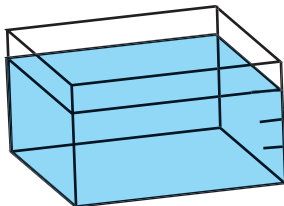


$\frac{1}{4}$

$\frac{2}{4}$

$\frac{3}{4}$

b)



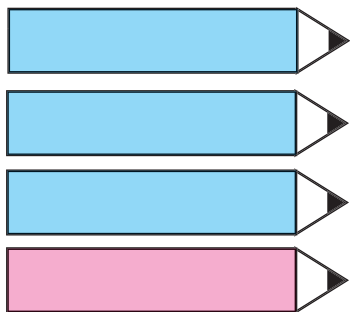
$\frac{1}{4}$

$\frac{2}{4}$

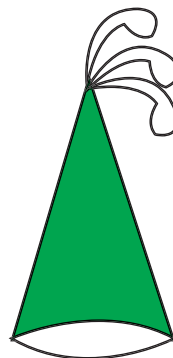
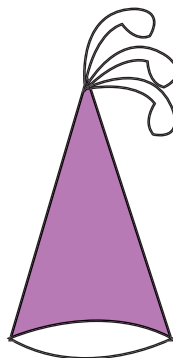
$\frac{3}{4}$

(c) Write the fraction for the shaded object in each collection.

Example



a)



$\frac{3}{4}$

of the pencils are blue.



of the caps are green.

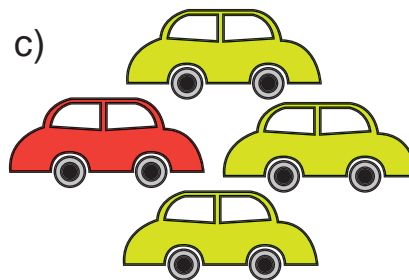


b)



of the combs are black.

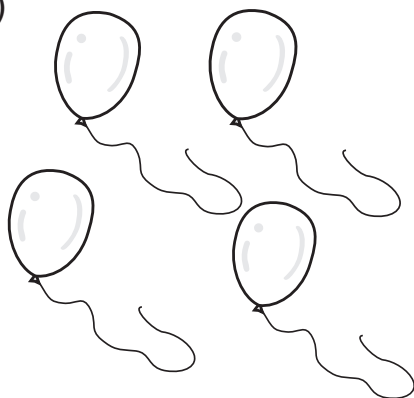
c)



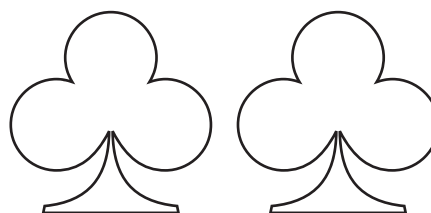
of the cars are red.

(d) Colour one half of each collection.

a)

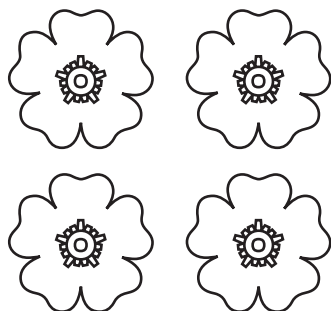


b)

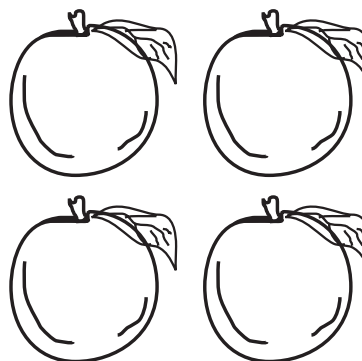


(e) Colour one fourth of each collection.

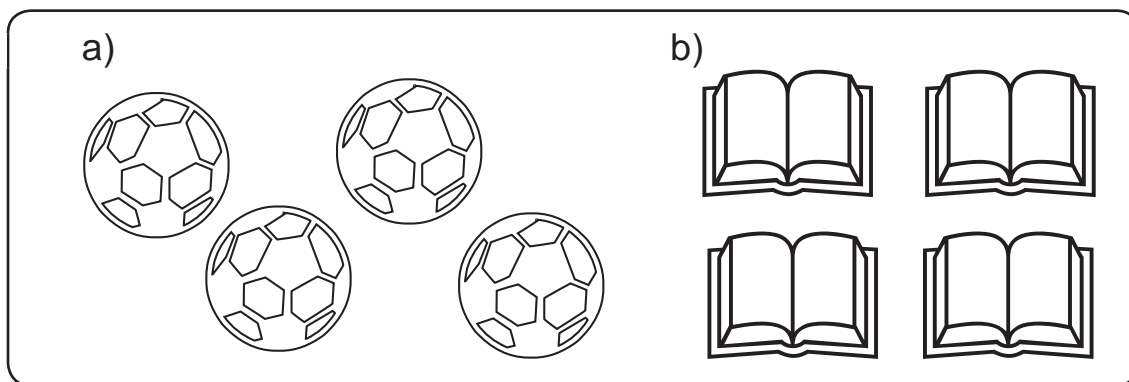
a)



b)

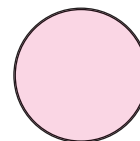


(f) Colour three fourth of each collection.



ACTIVITY 1

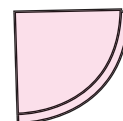
☺ Take a round sheet of paper as shown.



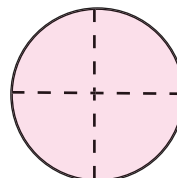
☺ Fold it and form two halves.



☺ Again fold it and form two halves as shown.



☺ Unfold the sheet.



Look at the four quarters in the sheets.

Find out the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ in the sheet.



Numerator and Denominator

The numbers $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ are fractional numbers.

Fraction — $\frac{\text{Numerator}}{\text{Denominator}}$



Fractions	Numerator	Denominator
$\frac{1}{2}$	1	2
$\frac{1}{4}$	1	4
$\frac{3}{4}$	3	4

Equivalent Fraction

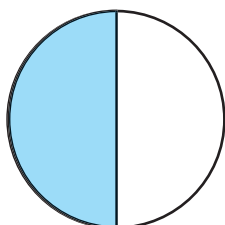


Fig (1)

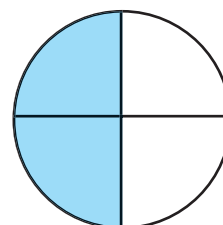


Fig (2)

In figure (1), a circle is divided into two equal parts and one is coloured. The fraction of coloured portion is $\frac{1}{2}$.

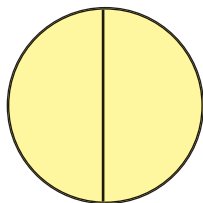
In figure (2), the circle is divided into four equal parts and two are coloured.

The fraction of the coloured portion is $\frac{2}{4}$.

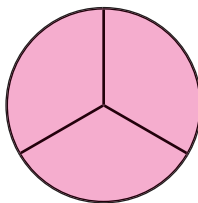
Do you notice that the coloured portion of two circles are same.

So, $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions.

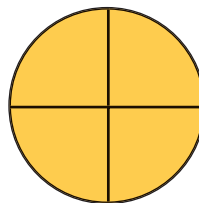
Look at the figures given below



Fig(1)



Fig(2)



Fig(3)

In figure (1) a circle is divided into 2 equal parts and both are coloured. The fraction of the coloured portion is $\frac{2}{2}$.

In figure (2) the circle is divided into 3 equal parts and 3 are coloured. The fraction of the coloured portion is $\frac{3}{3}$.

In figure (3) the circle is divided into 4 equal parts and all are coloured. The fraction of the coloured portion is $\frac{4}{4}$.

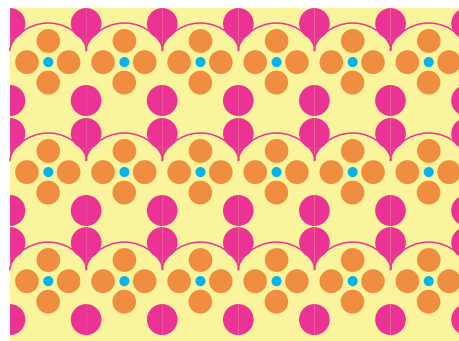
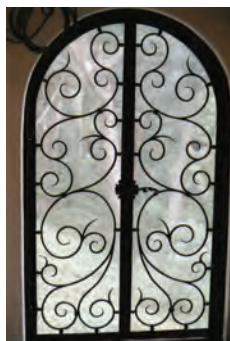
What do you observe from the above circles?

Coloured portions of the circles are same.

$\frac{2}{2}$, $\frac{3}{3}$ and $\frac{4}{4}$ are also called equivalent fractions.

Patterns Around us

In everyday life we see many patterns



Example





We can create various forms of patterns using objects, geometrical shapes, pictures, numbers, sounds, touch actions [tapping] and physical actions [clapping, jumping]

Pattern in geometrical shapes

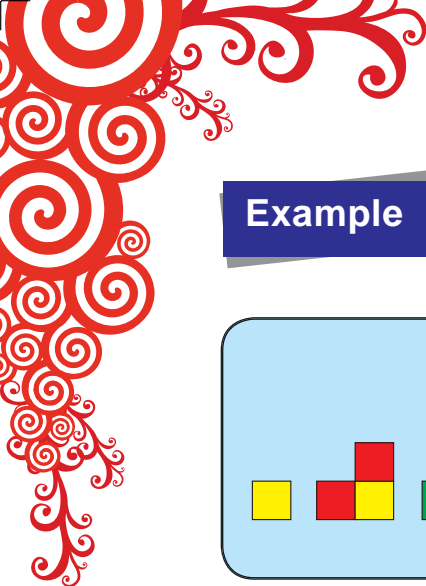
There are two types of patterns. They are

Growing patterns

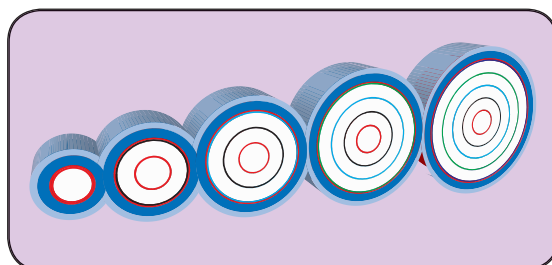
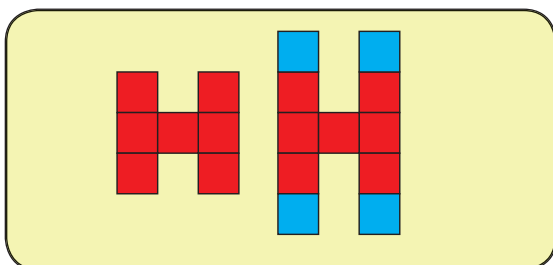
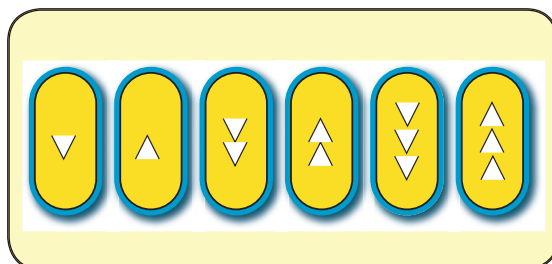
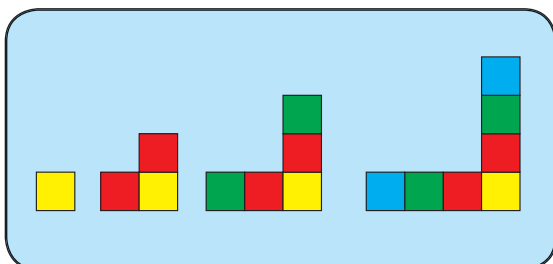
Repeated patterns

Growing patterns.

If some patterns and designs grow with straight lines and geometrical shapes, they are called **growing patterns**.

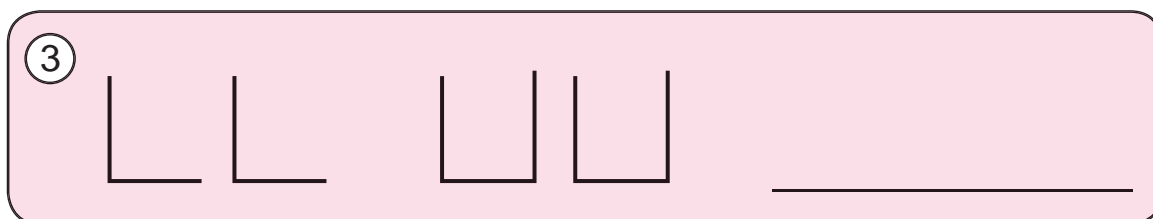
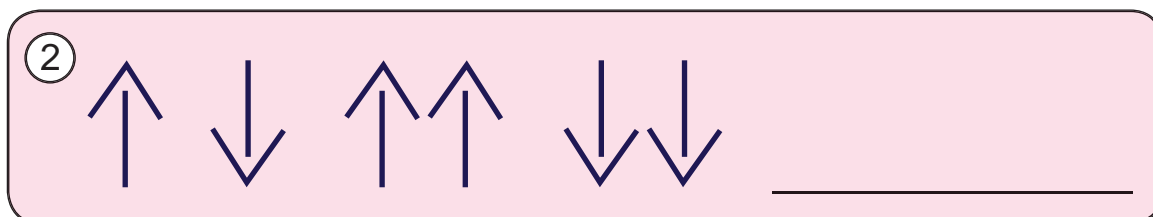
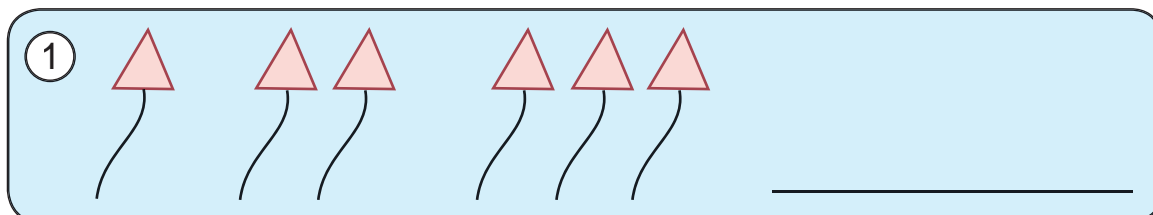


Example



Exercise 1

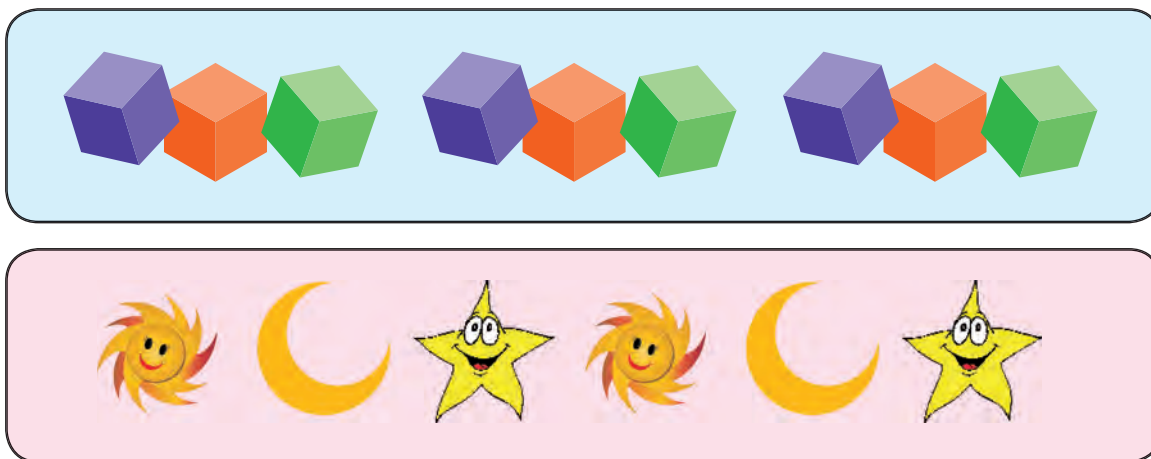
Continue the pattern :



Repeated Patterns

If some patterns and designs repeat with straight lines and geometrical shapes they are called **repeated patterns**.

Example



Exercise 2

Continue the pattern :

1

2

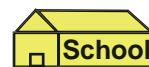
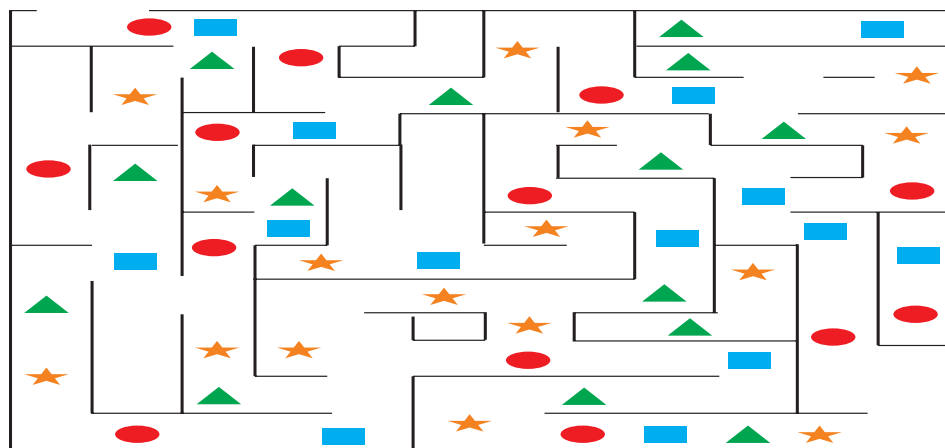
3



ACTIVITY 1

Follow the pattern  →  →  →  to reach the school from home.

Home



Project

Make your own patterns by :

- (i) using leaves, (ii) using flowers.
- (iii) using colour buttons.
- (iv) using bindhis, stickers, jamkkies in paper plate

Pattern in numbers

We have made some patterns with pictures. We can also make patterns with numbers too.

5, 10, 15, 20, ...

10, 20, 30, 40, ...

20, 40, 60, 80, 100, ...

In numbers also there are two types of patterns

Growing patterns

Repeated patterns

Growing patterns :

If some number patterns grow with odd and even numbers, they are called **growing patterns**

Example

1, 3, 5, 7, ...

10, 20, 30, ...

17, 19, 21, ...

Repeated patterns :

If some number patterns repeat with odd and even numbers, they are called **repeated patterns**

Example

744 744 744

156 156 156

101 101 101

Exercise 3

Complete the following patterns :

a) 2, 4, 6, 2, 4, _____, _____, _____

b) 1, 3, 6, 10, _____, _____, _____

c) 1, 3, 7, 13, _____, _____, _____

d) 15, 25, 35, 15, _____, _____, _____

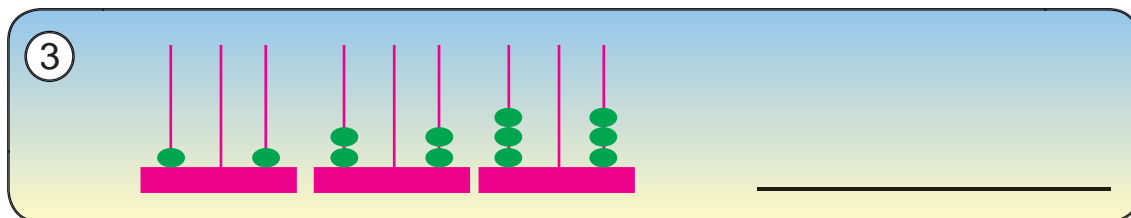
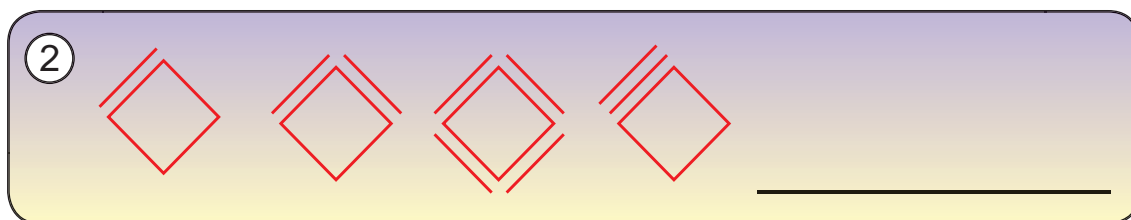
e) 111, 222, 333, _____, _____, _____

f) 10, 20, 30, 10, _____, _____, _____



Exercise 4

a) Complete the patterns:



b) Match the following and complete the pattern :

c) Observe the pattern and complete the series :

a) 3, 6, 9, 12, 15,

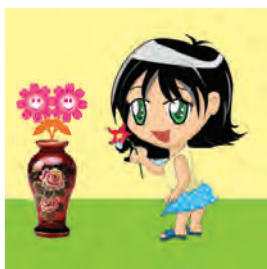
b) 4, 8, 12, 16, 20,

c) 395, 390, 385, 380, 375,

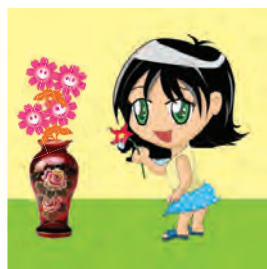
d) 120, 130, 140, 150,

e) 11, 22, 33, 44, 55, 11 ,

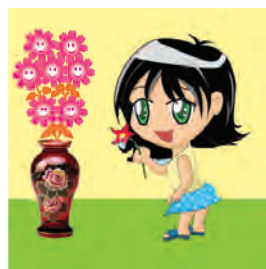
d) Complete the following :



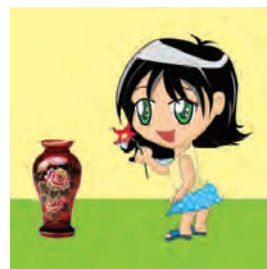
2 Flowers



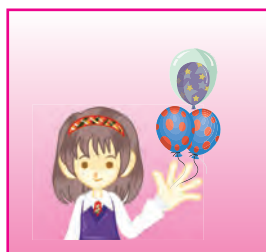
4 Flowers



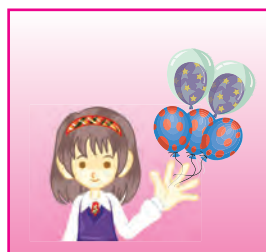
7 Flowers



___ Flowers



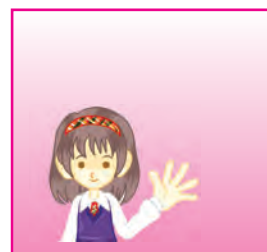
3 Balloons



5 Balloons



7 Balloons



___ Balloons

Symmetry



ACTIVITY 2

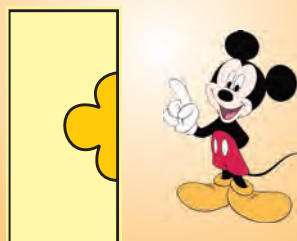
Step 1 :

Take a paper and fold it.

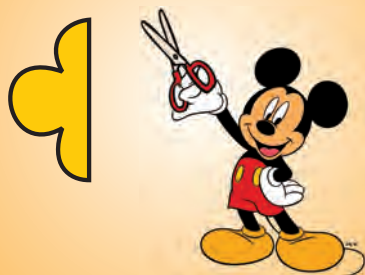


Step 2 :

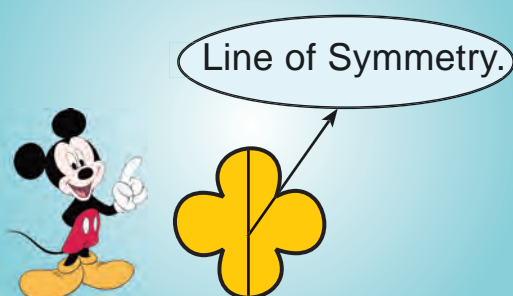
Draw any shape at the folded edge of the sheet.



Step 3 : Cut the shape.



Step 4 : Unfold it.



Note that one half of the shape is exactly like the other half. The line which divides the figure into two exact halves is called the **'line of symmetry'**.



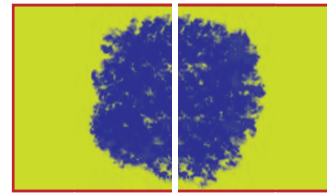
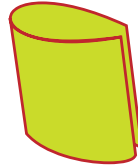
Try it !

In symmetrical shapes one half is the mirror image of the other.



ACTIVITY 3

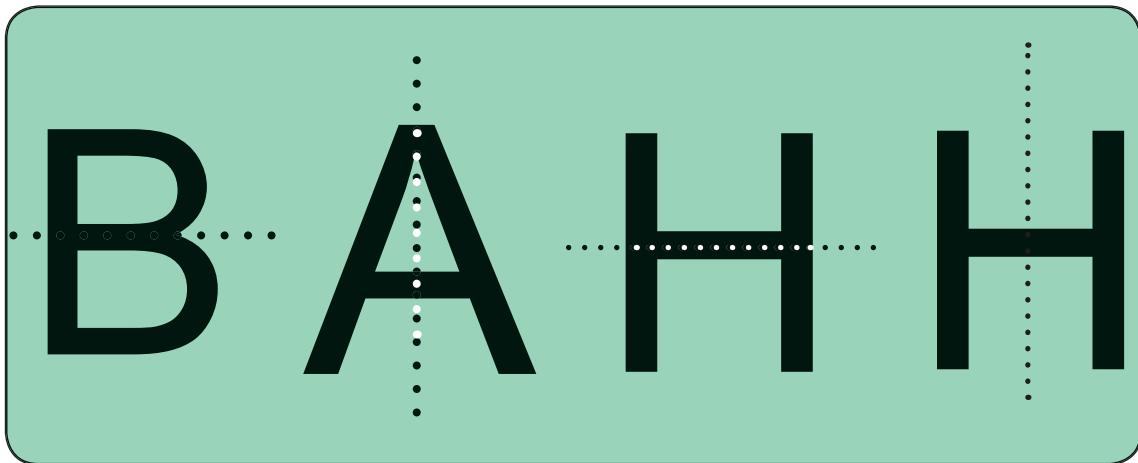
- ★ Take a piece of paper.
- ★ Spill few drops of ink on the paper.
- ★ Now fold the paper and press it.
- ★ You will get a symmetric figure.



Example

In the following symmetrical letters observe the symmetrical lines.

How to divide the figure into two equal parts?





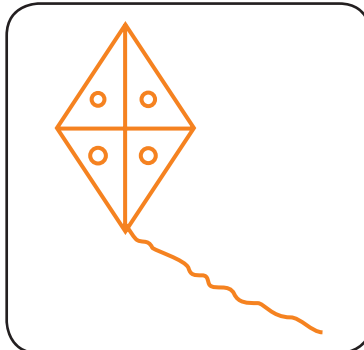
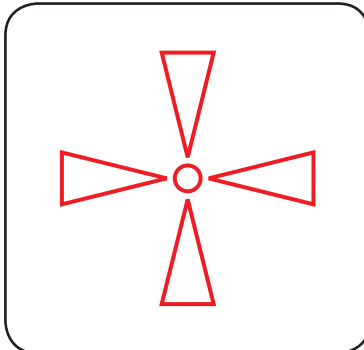
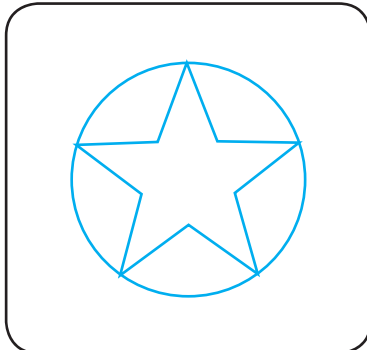
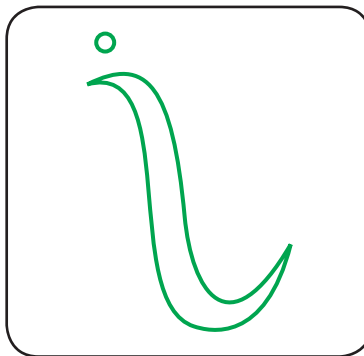
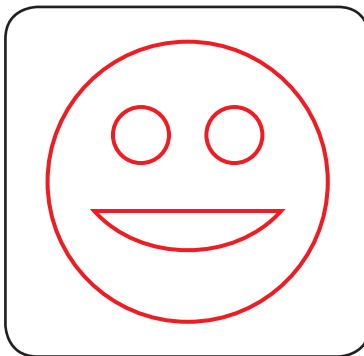
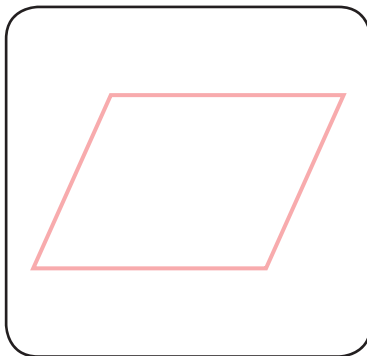
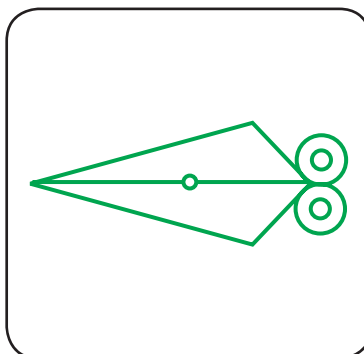
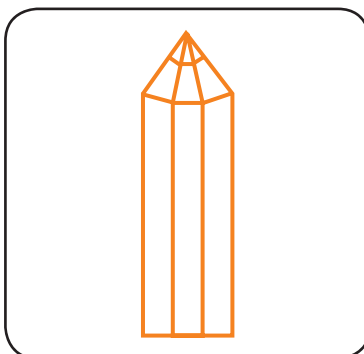
Project

Make the students to create the symmetrical patterns as above by themselves and display in the class.



Exercise 5

1) Colour the symmetrical figures :



2) Draw the lines of symmetry for the following figures :

1)



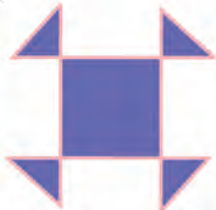
2)



3)



4)



5)



6)



3) Draw the other half of the figure to make it symmetrical :

1)



2)



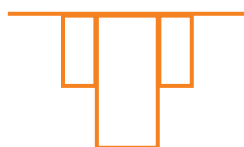
3)



4)



5)



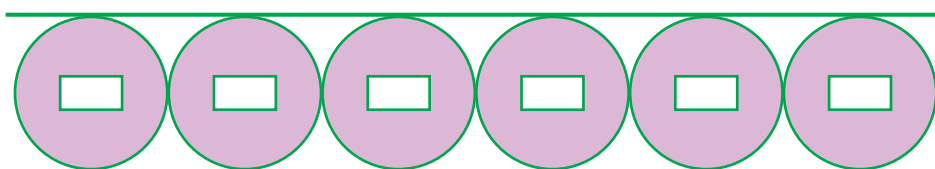
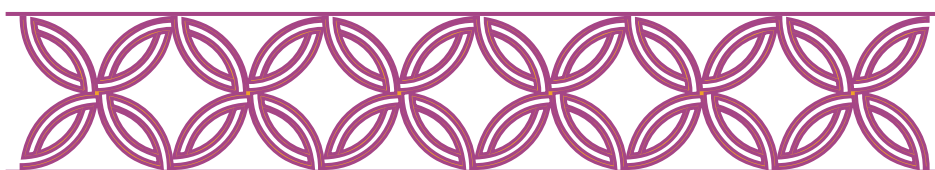
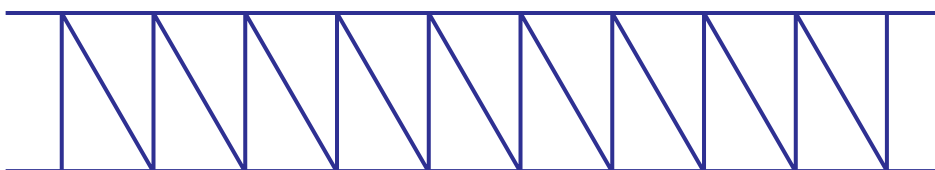
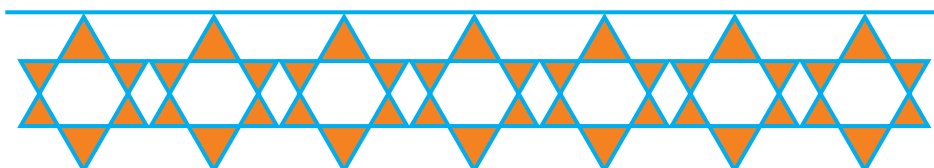
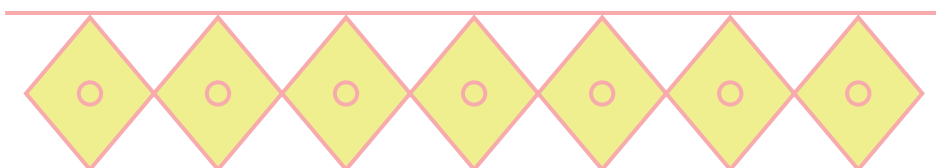
6)





4) Classify whether the following are symmetrical pattern or not by putting ✓ or ✕ in the box.

Example





Look at the above picture and fill the required data:

1) Number of buildings

4) Number of trees

2) Number of birds

5) Number of ducks

3) Number of lotus

6) Number of fish



ACTIVITY 1

Try to collect data for the following questions from your school.

1) Number of class rooms

2) Number of teachers

3) Number of male teachers

4) Number of female teachers

5) Number of trees, bikes, bicycles, toilets, taps.

6) Number of students in standards I, II, III, IV and V.



Questionnaire model:



**Data gives us
information !
Collection of
information helps
us to know
many facts!**



**Questionnaire is one of the
methods to collect information**

**Questions are framed
on the information we need**

Name of the head of the family

Number of persons in the family

Adult

Children

Number of literates

Number of children studying in

School

College

Occupation of the
head of the family

Total income of
the family

Mother tongue of the student

**"A survey is a method of collecting information through
data gathering, interview and questionnaire"**



ACTIVITY 2

Following table shows the hours spent by the friends in the playground during summer holidays.

DAY NAME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	TOTAL
Balu	2	1	2	1
Raja	2	1	2	3
Malar	1	3	3	2
Varun	2	1	0	2
Sandhya	3	2	1	1

1. Who spent maximum time in the playground?

2. Who spent minimum time in the playground?

3. Who spent maximum time in the playground on Thursday?

4. How many hours did Sandya spend in the playground on Monday?




Project

Ask your classmates about their favourite subjects and record it in the table. (Group work).

Sl.no	Subjects	No.of.students
1.	Tamil	
2.	English	
3.	Maths	
4.	Science	
5.	Social science	
6.	Drawing	
7.	Music	
8.	Sports	
9.	Computer	
10.	G. K	

Subject is liked by the most.

Tally marks

Before the invention of numbers, ancient people used fingers, knots and tally marks for counting. 'I' is called "tally mark". To Make it easier to count, after 4 tally marks the fifth tally mark is entered as 

Number	Tally Marks
1	I
2	II
3	III
4	IIII
5	
6	
7	
8	
9	
10	



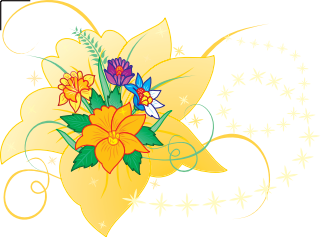
ACTIVITY 3

Following are the marks scored by III std students in mathematics.

40	60	48	52	58	43	58	40	60	52
52	58	48	40	60	40	40	53	52	43
43	52	40	48	53	60	60	52	40	48

Convert the above marks into the table using tally marks.

Marks	Tally Marks	No. of students
40		7
43		
48		
52		
53		
58		
60		
	TOTAL	



Exercise 1

The physical education master in a school recorded the height of the 20 students (in cm)

100	118	110	118	118
118	100	100	118	100
110	100	118	110	110
100	110	100	100	110

Prepare the table with tally marks for the above data :

Height (cm)	Tally marks	Number of students
100		
110		
118		
	TOTAL	

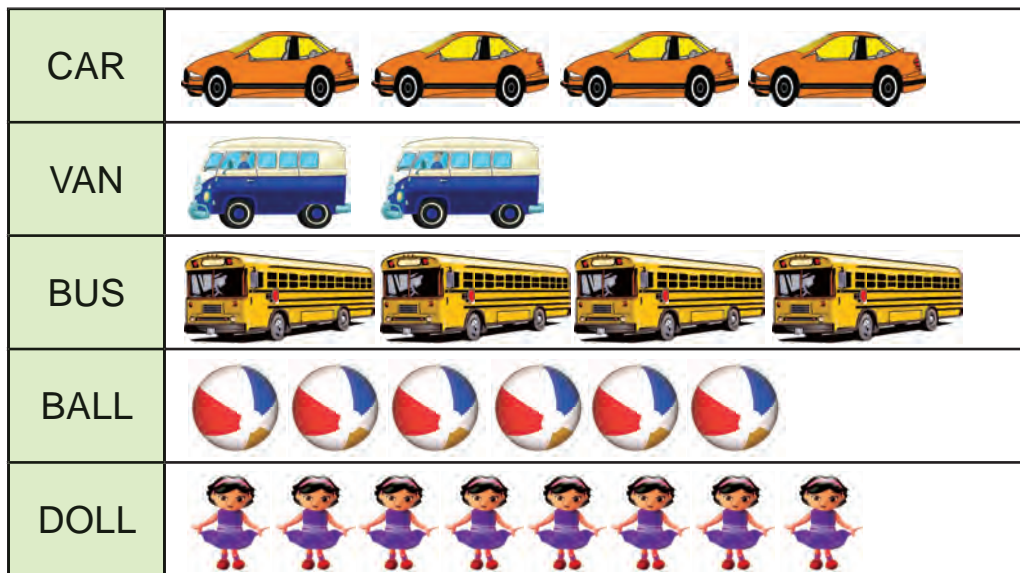
Pictographs

Representation of data in the form of symbols and pictures are easy to study. This kind of representation is called **“PICTOGRAPHS”**.



ACTIVITY 4

The following pictograph shows the sale of toys in a shop :



Look at the above pictograph and fill the required data :

a) Total number of toys sold

b) Total number of balls sold

6

c) Name the toy which sold least in number

d) Name the toy which sold most in number

e) Total number of buses sold









ACTIVITY 5

The following pictograph represents the number of apples sold at a shop in a week.



= 10 Apples

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Answer the following questions from the data given in the above table.

1) Total number of apples sold in six days

2) Total number of apples sold on Thursday

3) The sale was maximum on

4) The sale was minimum on

5) The sales were equal on

and



ACTIVITY 6

Represent the following data in terms of pictograph.

😊 = 5 Students

Standard	No. of Students
I	15
II	20
III	25
IV	20
V	30

I Std	😊😊😊
II Std	
III Std	
IV Std	
V Std	



Date:.....

1) In a cricket selection match, 25 students participated. The number of runs scored by each student is given below.

30	30	32	40	45
32	30	40	45	40
32	32	32	30	40
45	40	45	45	40
30	30	32	32	30




















Prepare a table with tally marks for the above data.

Runs	Tally marks	No. of students



2) Number of computers supplied to the schools are given below.

 = 4 Computers

School A	  
School B	    
School C	    
School D	   
School E	 

From the above pictograph, fill the following data.

a) Number of computers supplied to the school A

b) Total number of computers supplied to all schools

c) Number of computers supplied to the school D

d) Number of computers supplied to the school B

3) Represent the number of students in each class of your school through pictograph.

Comments

Teacher's signature